DAELIM

SERVICE MANUAL

CONTENTS

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GENERAL	SERVICE INFORMATION	1
	INSPECTIONS / ADJUSTMENTS	2
	EXTERNAL PARTS	3
ENGINE	LUBRICATION SYSTEM	4
	FUEL SYSTEM	5
	ENGINE REMOVAL/INSTALLATION	6
	LH. CRANK CASE COVER / KICK STARTER / CONTINUOUSLY VARIABLE TRANSMISSION	7
	AC GENERATOR	8
	CYLINDER HEAD / VALVE	9
	CYLINDER / PISTON	10
	TRANSMISSION / CRANKSHAFT / CRANKCASE	11
FRAME	FRONT WHEEL / FRONT FORK / STEERING / BRAKE	12
	REAR WHEEL / REAR BRAKE / REAR CUSHION	13
ELECTRICAL SYSTEM	CHARGING SYSTEM	14
	IGNITION SYSTEM	15
	STARTER SYSTEM	16
	LIGHTS / SWITCHES / HORN	17
	TROUBLE SHOOTING	18
	WIRING DIAGRAM	19

EDDY

50 4-Stroke Power

1. SERVICE INFORMATION

SERIAL NUMBER LOCATION · · · 1-1	LUBRICATION OIL · · · · · · · · · · 1-6
SPECIFICATIONS · · · · · · · · · · 1-2	WIRING DIAGRAM · · · · · · · · · · 1-7
TWIST TORQUE · · · · · · · · · · 1-4	GENERAL SAFETY · · · · · · · · · · 1-11
SYMBOLS / ABBREVIATIONS · · · · 1-5	CAUTION WHEN WIRING · · · · · · 1-15

SERIAL NUMBER LOCATION

ENGINE SERIAL NUMBER LOCATION

FRAME SERIAL NUMBER LOCATION

1

SPECIFICATION

ITEM		SPECIFICATION
DIMENSIONS	OVERALL LENGTH	1.790mm
	OVERALL WIDTH	670mm
	OVERALL HEIGHT	1.102mm
	WHEEL BASE	1.250mm
	SEAT HEIGHT	750mm
	GROUND CLEARANCE	120mm
	DRY WEIGHT	94kg
	GROSS WEIGHT	224kg
FRAME	TYPE	Underbone
	FRONT SUSPENSION	Telescopic
	REAR SUSPENSION	Swing Arm
	FRONT TIRE SIZE/TYPE	3.50 -10 51J
	REAR TIRE SIZE/TYPE	3.50 -10 51J
	TIRE PRESSURE 1 person FRONT	2.00kg/㎠
	REAR	2.00kg/㎠
	2 persons FRONT	2.00kg/㎠
	REAR	2.25kg/㎠
	FRONT BRAKE	-Hydraulic
	REAR BRAKE	-Mechanical Drum
	FUEL TANK CAPACITY Full capacity	5.0L
	Reserve capacity	1.5L
	CASTER ANGLE	27。
ENGINE	TYPE	Air cooled 4cycle SOHC engine
	CYLINDERS, ARRANGEMENT	1(single cylinder), front angle 90 °
	BORE X STROKE	39.0×39.5mm
	DISPLACEMENT	49.5cc
	COMPRESSION RATIO	10.5 : 1
	VALVES	SOHC chain drive
	ENGINE OIL CAPACITY	0.85L (Full capacity) 0.70L (at changing)
	TRANSMISSION OIL CAPACITY	0.12L (Full capacity)
	LUBRICATION TYPE	Forced pressure splash type
	AIR CLEANER TYPE	Paper filter
	COMPRESSION PRESSURE	10kg/cm² (600rpm)
	INTAKE VALVE IN VALVE OPEN	0 °BTDC
	CLOSE	25 °ABDC
	EX VALVE OPEN	33 °BBDC
	CLOSE	0 °ATDC
	VALVE CLEARANCE INTAKE	0.1mm
	EXHAUST	0.1mm

ITEM		SPECIFICATION
CARBURETOR	TYPE/ VENTURY BORE	CV type(vacumm)/Φ16mm
	MODEL MARK	PD19J
	CHOKE TYPE	Auto-bystarter
	MAIN JET	#110
	PILOT SCREW REVERSE REVOLUTION SPEED	1 3/4
	FLOAT LEVEL	11mm
	IDLE SPPED	1,700±100 rpm
DRIVE TRAIN	CLUTCH TYPE	Automatic Transmission(V-belt type)
	PRIMARY REDUCTION	3.533
	SECONDARY REDUCTION	3.714
ELECTRICAL SYSTEM	IGNITION SYSTEM	AC-CDI
	IGNITION TIMING F MARK	BTDC 14 °
	BATTERY CAPACITY	12V 6Ah
	SPARK PLUG	CR6HSA
	SPARK PLUG GAP	0.6~0.7mm
	FUSE CAPACITY	15A
	STARTING SYSTEM	STARTER MOTOR / KICK
	HEADLIGHT(HIGH / LOW)	12V 35 / 35W
	WINKER LIGHT(HIGH/LOW)	12V 10W
	TAIL/ STOP LIGHT	12V 21 / 5W
	HIGH-BEAM PILOT LAMP	12V 3W
	WINKER PILOT LAMP	12V 3W X 2
	SPEEDOMETER LAMP	12V 1.7W X 2

TORQUE VALUES

ENGINE

ITEM	Q'TY	THREAD DIA (mm)	TORQUE VALUE	REFERENCE
TAPPET ADJUSTING ROLL CAP	1	30	1.5 kgf · m	
OIL DRAIN PLUG BOLT	1	12	2.5 kgf · m	
VALVE ADJUST SCREW LOCK NUT	2	5	1.1 kgf · m	
CYLINDER HEAD BOLT	2	6	1.1 kgf · m	
FLYWHEEL NUT	1	12	5.5 kgf · m	Apply the engine oil
DRIVE FACE NUT	1	12	5.5 kgf · m	
CLUTCH OUTER BOLT	1	10	4.0 kgf · m	
SPARK PLUG	1	10	1.2 kgf · m	
DRIVE PLATE	1	28	5.5 kgf · m	
CAM SHAFT HOLDER NUT	4	7	2.0 kgf · m	Apply the engine oil
CAM CHAIN TENSIONER FLANGE BOLT	2	6	1.0 kgf · m	
CAM CHAIN TENSIONER PAN SCREW	1	6	0.4 kgf · m	
CYLINDER HEAD COVER BOLT	4	6	1.1 kgf · m	
MISSION COVER BOLT	8	6	1.2 kgf · m	
MISSION COVER DRAIN BOLT	1	8	1.0 kgf · m	
MISSION COVER CHECK BOLT	1	8	0.9 kgf · m	
COOLING FAN BOLT	3	6	1.0 kgf · m	
STARTER MOTOR FLANGE BOLT	2	6	0.9 kgf · m	

FRAME

ITEM	Q'TY	THREAD DIA (mm)	TORQUE VALUE	REFERENCE
STEERING LOCK NUT	1	26	7.0 kgf · m	
STEERING TOP NUT	1	26	0.25 kgf · m	
HANDLE BAR LOCK NUT	1	10	4.5 kgf · m	
FRONT AXLE NUT	1	12	6.0 kgf · m	
FRONT CALIPER BRACKET BOLT	1	10	3.0 kgf · m	
FRONT MASTER CYLINDER HOLDER BOLT	2	6	1.2 kgf · m	
FRONT DISK PLATE BOLT	3	8	4.25 kgf · m	
FRONT FORK BOLT	2	22	2.25 kgf · m	
REAR WHEEL AXLE NUT	1	16	12 kgf · m	
REAR CUSHION UPPER BOLT	1	8	4.0 kgf · m	
REAR CUSHION UNDER BOLT	1	8	4.0 kgf · m	
REAR CUSHION UPPER METAL LOCK NUT	1	10	3.5 kgf · m	
ENGINE HANGER UPPER BOLT	1	10	4.5 kgf · m	
MAIN STAND BOLT	1	10	4.0 kgf · m	
SIDE STAND PIVOT SCREW	1	10	1.5 kgf · m	
SIDE STAND PIVOT NUT	1	10	4.5 kgf · m	

Torque values listed above are for specific tightening points. Torque values for other items are listed in the following table.

ITEM	TORQUE VALUE	ITEM	TORQUE VALUE
5mm BOLT, NUT	0.5 kgf · m	5mm SCREW	0.4 kgf · m
6mm BOLT, NUT	1.0 kgf · m	6mm SCREW	0.9 kgf · m
8mm BOLT, NUT	2.2 kgf · m	6mm SCREW BOLT, NUT	1.2 kgf · m
10mm BOLT, NUT	3.5 kgf · m	8mm SCREW BOLT, NUT	2.7 kgf · m
12mm BOLT, NUT	5.5 kgf · m	10mm SCREW BOLT, NUT	4.0 kgf · m

SYMBOLS / ABBREVIATIONS

The following symbols are used in this manual to represent job-related warnings or cautions.

SYMBOL	MEANING	SYMBOL	MEANING
WARNING	Indicates dangerous area. Serious accident may result if instructions are not followed.	CAUTION	Indicates important work. Minor injury or vehicle part damage may result if instruction are not followed.
		NOTE	Indicates general safety matters. Provides safety and appropriate handling procedures.

The following abbreviations are used in this manual.

ASS'Y	ASSEMBLY
LH.	Left
RH.	Right

The following symbols indicate oil adding, oil change, or parts.

SYMBOL	CAUTION
	Use recommended engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease with the ratio 1:1)
	Use multi-purpose grease (Lithium based multi-purpose grease NLG #2 or equivalent)
	Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent)
	Use molybdenum disulfide paste containing more than 40% molybdenum disulfide, NLGI #2 or equivalent)
	Use silicone grease
	Apply a locking agent. Use the agent of the middle strength, unless otherwise specified
	Apply sealant
	Replace the parts with new ones before assembly
	Use brake fluid, DOT3 or DOT4. Use the recommended brake fluid, unless otherwise specified
	Use Fork or Suspension Fluid
	Use special tool
	Use option tool. These tools are obtained as you order parts.
(⇨3-1)	Indicates reference page. (Example : Refer to page 3-1)

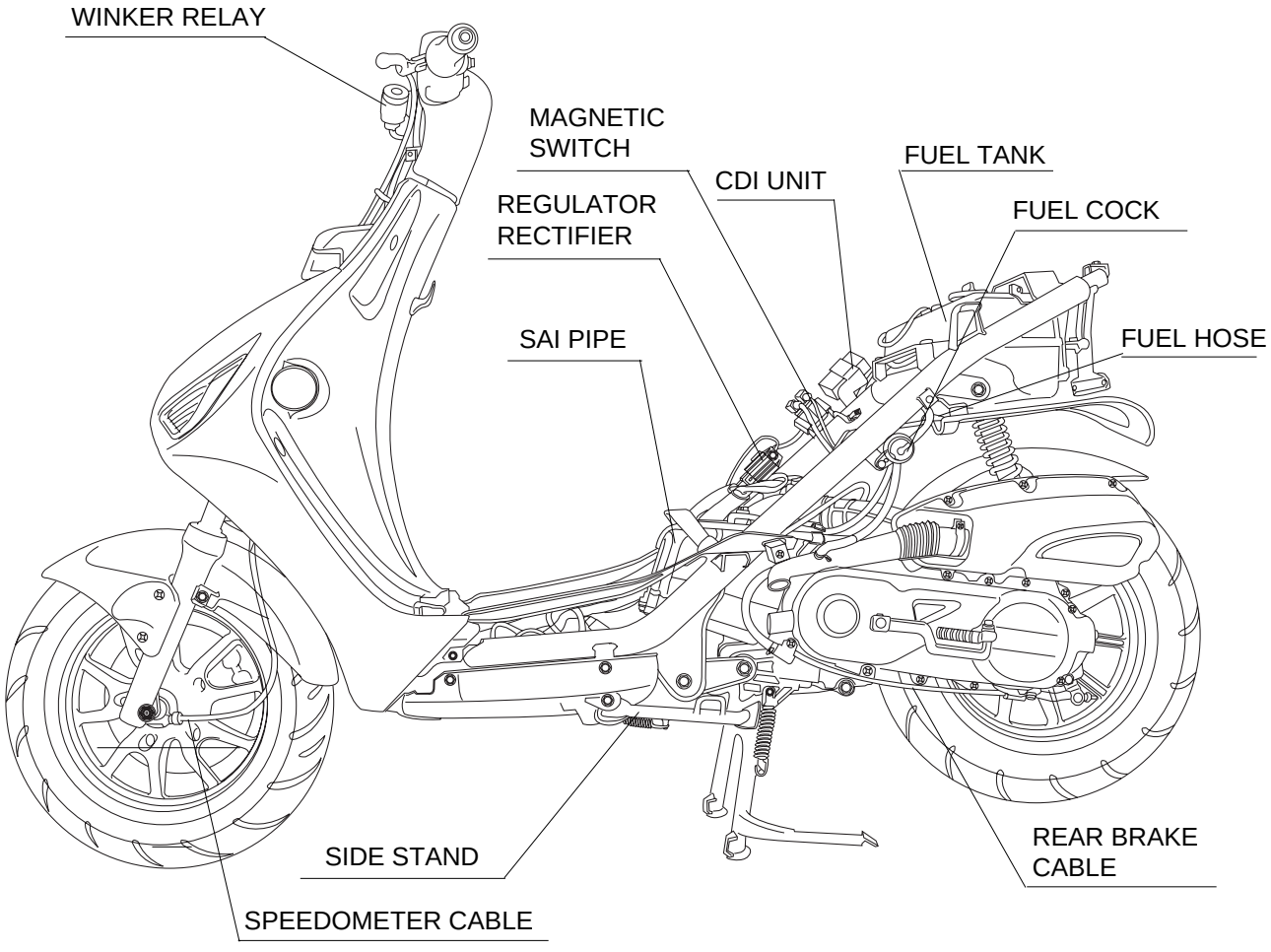
Special grease, etc. that do not correspond to the above are indicated without using symbols.

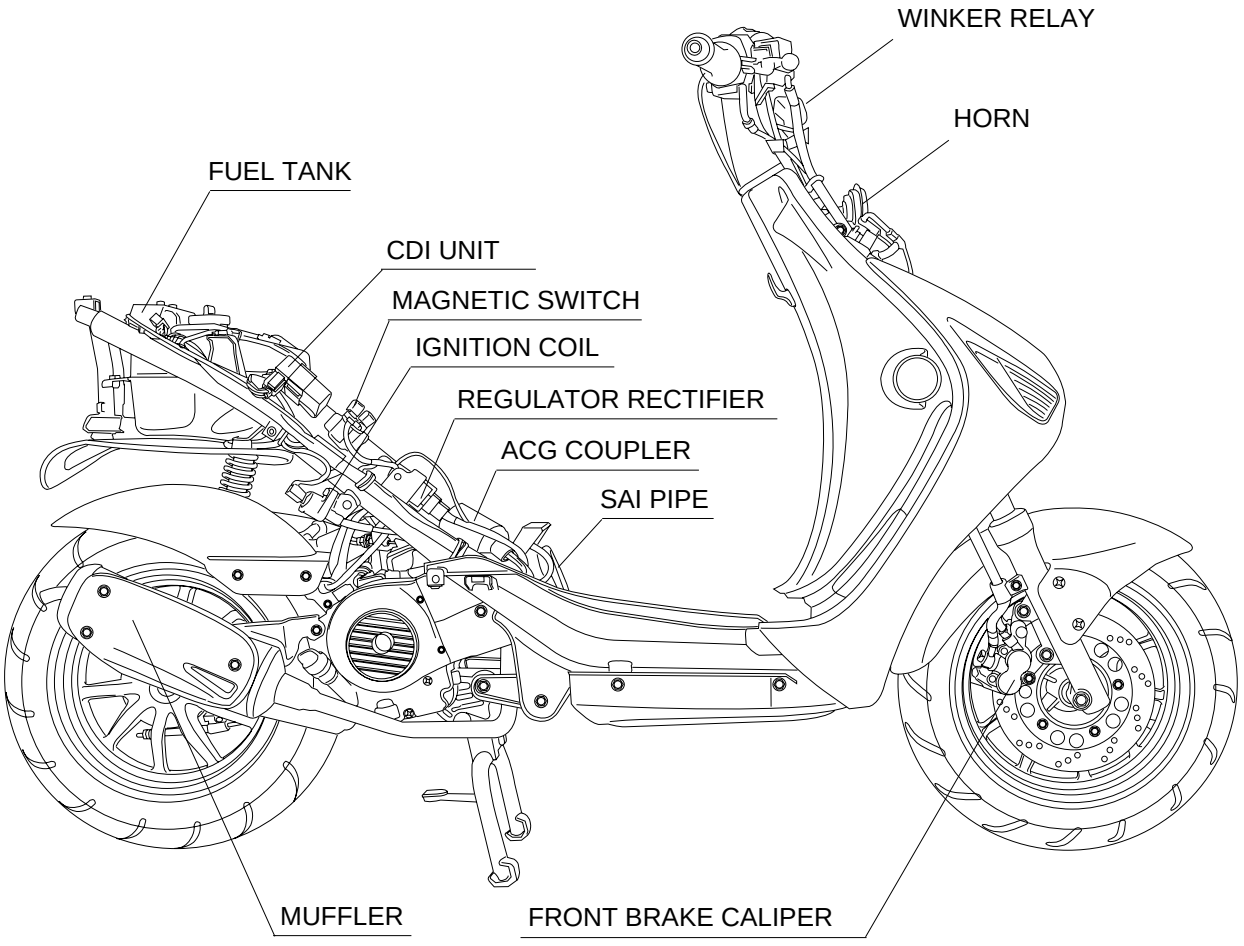
LUBRICATION OIL

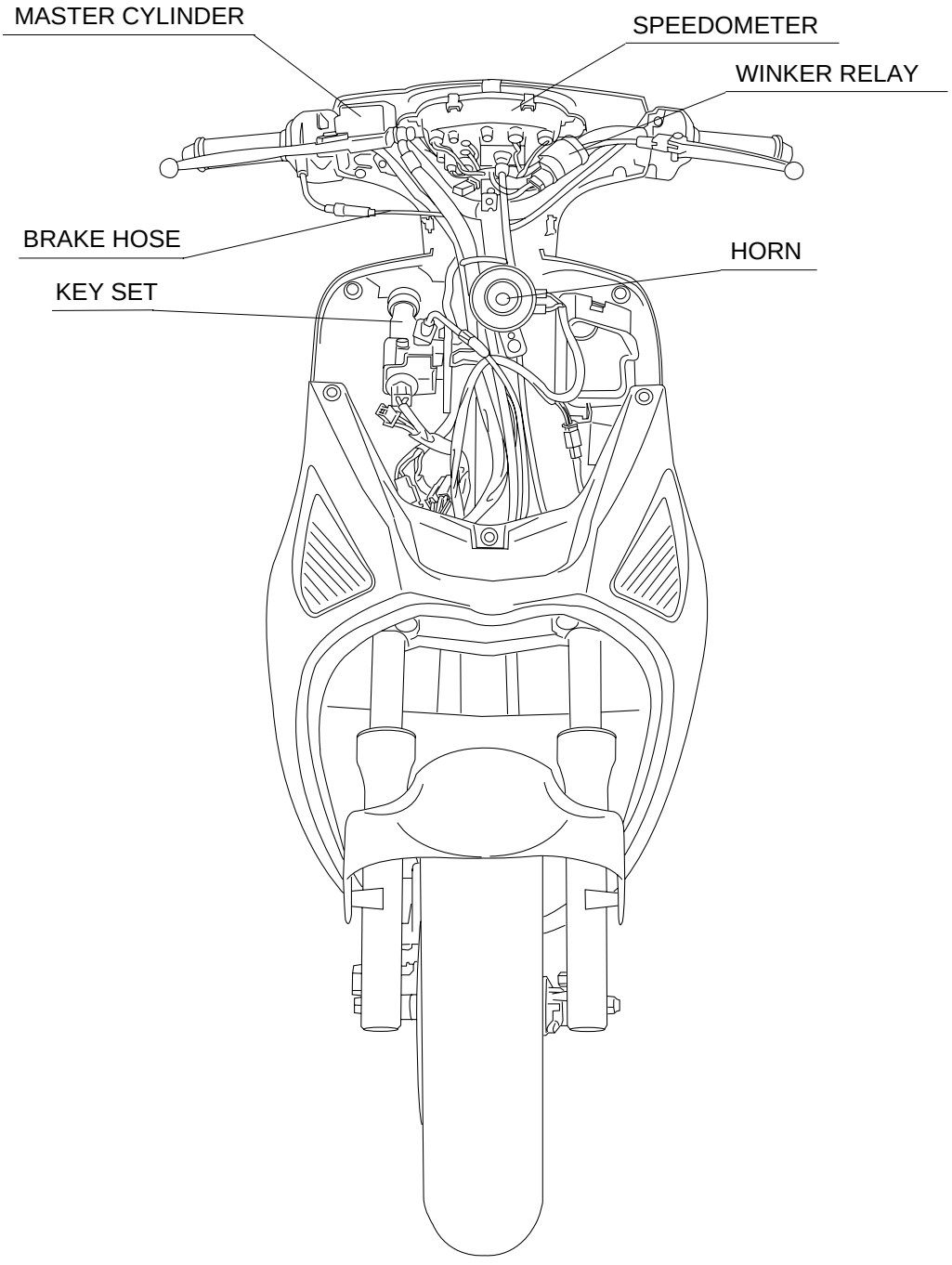
ENGINE PARTS

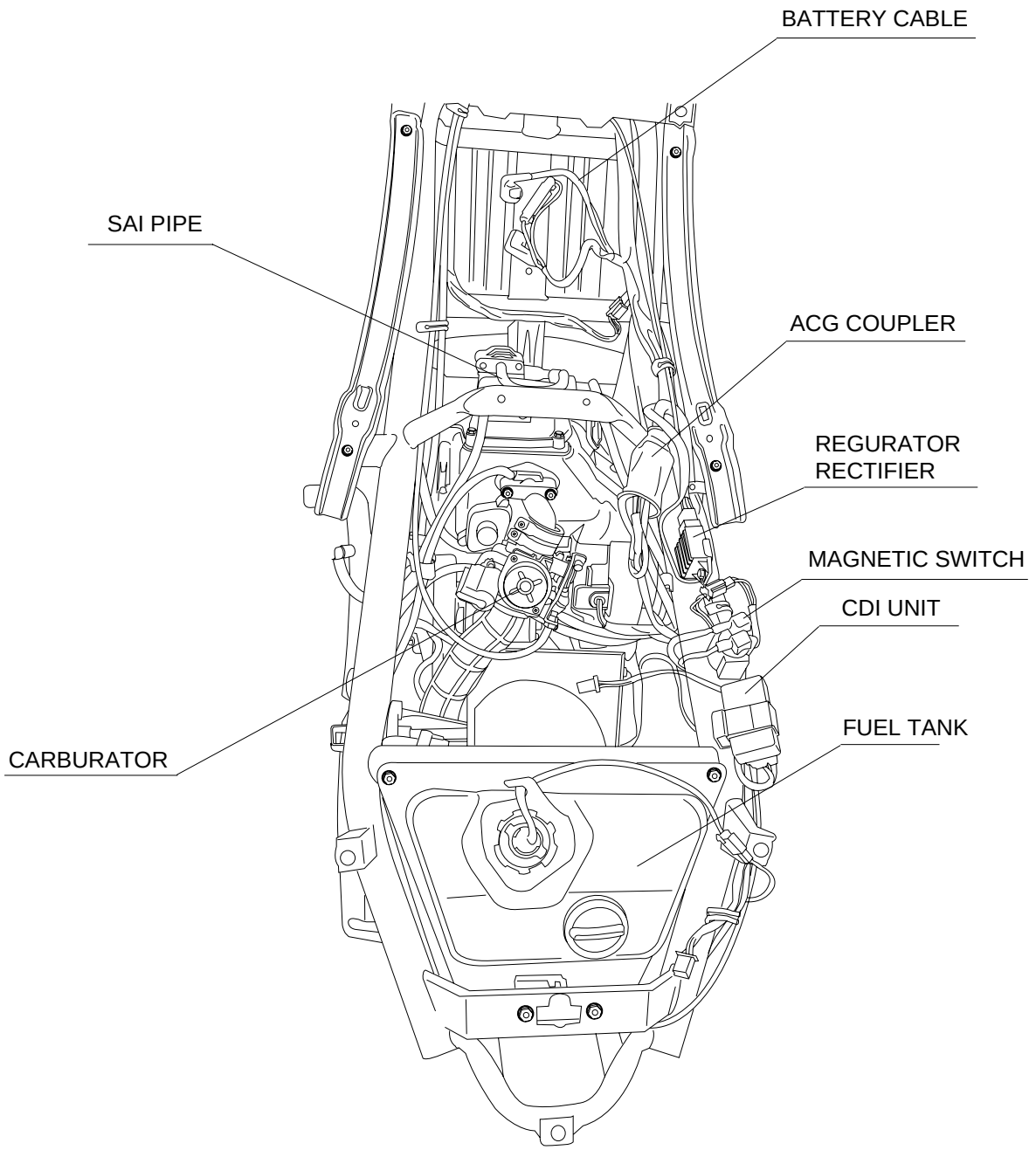
APPLICATION AREA	REMARKS
VALVE GUIDE / VALVE STEM WORKING AREA CONTACT AREA OF CAM SHAFT CONTACT AREA OF VALVE ROCKER ARM CAM SHAFT DRIVE CHAIN PISTON & PISTON RING GROVE INSIDE CYLINDER CONNECTING ROD PISTON PIN HOLE CONNECTING ROD CRANK SHAFT OIL PUMP DRIVE CHAIN COUNTER SHAFT GEAR FINAL GEAR BEARING SURFACE OF O-RING OIL SEAL	• SAE15W-40 or SAE10W-40 • API SL
AREA OF FRICTION SPRING WORK / SHAFT WORK AREA OF SHAFT WORK	HEAT RESISTENT GREASE

WIRING DIAGRAM




WINKER RELAY
HORN
FUEL TANK
CDI UNIT
MAGNETIC SWITCH
IGNITION COIL
REGULATOR RECTIFIER
ACG COUPLER
SAI PIPE
MUFFLER
FRONT BRAKE CALIPER


MASTER CYLINDER
SPEEDOMETER
WINKER RELAY
BRAKE HOSE
HORN
KEY SET


BATTERY CABLE
SAI PIPE
ACG COUPLER
REGURATOR
RECTIFIER
MAGNETIC SWITCH
CDI UNIT
FUEL TANK
CARBURATOR

GENERAL SAFETY

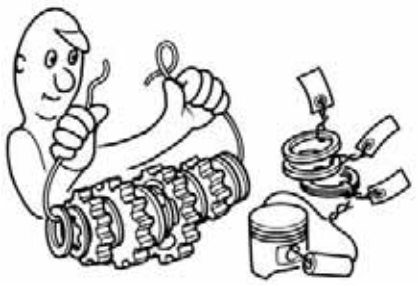
WARNING

1. Do not run the engine for a long time in closed or not well-ventilated area because the exhaust gas contains toxic substances such as carbon monoxide, hydrocarbon, nitric oxide.
2. The battery fluid(lean sulfuric acid) is extremely toxic. It is dangerous if skin is exposed to it or if it enters into the eye. Be careful in handling. When exposed to the battery fluid, wash it with water and get a medical check up.(store the battery fluid in a safe place to avoid touching by the children)
3. Pay attention not to be burned and always put on the protection gears because the engine or the muffler is hot right after engine stops.
4. Gasoline is extremely flammable. Maintenance must performed in the place free of the open fire or electric spark.
5. When more than two person are working, always pay attention to other worker's action and alway have safety in mind.
6. The skin exposed to used engine oil can be a major reason of the skin cancer. Pay attention not to exposed and wash carefully with soap and water after handling.
7. If compressed air is used to clean the brake, dust scattered in the air can be breathed in by workers. Please take action not to scatter dust in the brake cleaner, etc.
8. Flammable nitrogen gas is generated during charging the battery so charging must be performed in well-ventilated area and free of the open fire and spark.

SERVICE RULES

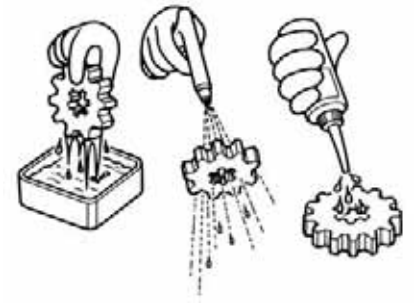
1. Parts and lubrication oil must be DAELIM genuine or recommended parts.
2. Before maintenance, remove deposit or dust from the chasis.

3. Store the parts of each system discriminatively to install each part in the right place.



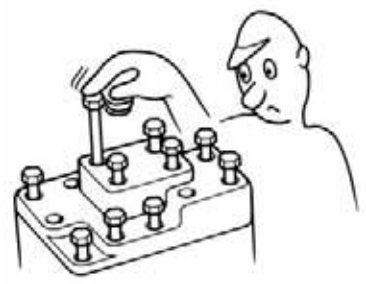
4. After removing gasket, O-ring, piston pin clip and cotter pin, always replace them with the new one. When removing the snap ring, it can be easily missed after transformation or installation.

5. Clean the parts after the overhaul and before the test and remove the cleaning oil with compressed air. Apply oil to seal face during installation.

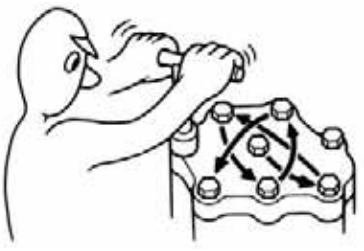


6. Check necessary place and measure necessary data during installation. When installing, return to the state before removing.

7. Align the bolts to uniform the tightening points before tightening them when you don't know the bolt length.



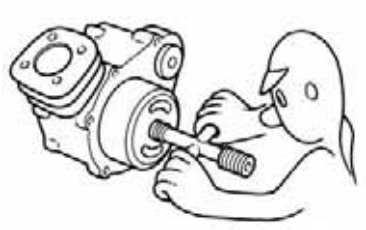
8. Bolts, nuts and pieces must be tightened from the bigger diameter to the smaller one, from inside to outside and diagonally with the specified torque.



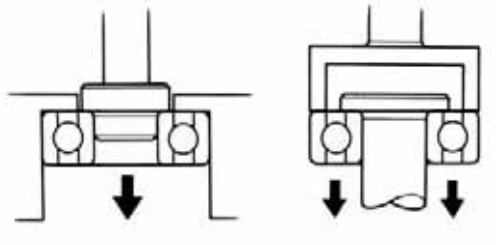
9. Check to see if the rubber part is worn out when removing it and replace it if necessary. Some rubber part is weak to gasoline and kerosene, so pay attention not to soak with gasoline or oils.

10. Recommended grease must be applied to or filled in the specified place.

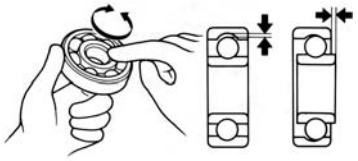
11. Maintenance needed to use the specialized tools must performed with the right tool.



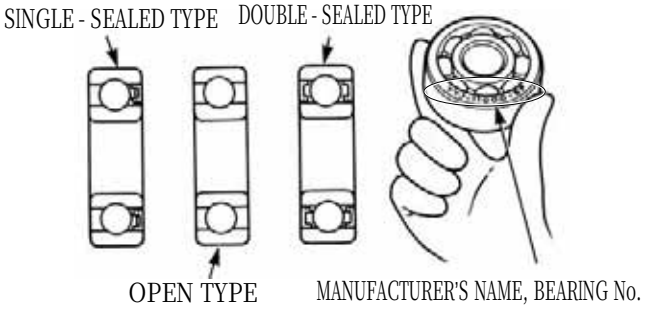
12. Never reuse the ball bearing removed with the ball applied pressure when removing press-fitted the bearing.



13. Check the smooth rotation of inner or outer race of the ball bearing by rotating it manually.
    - Replace the ball bearing having excessive axial/ longitudinal hanging.
    - Wipe the ball bearing likely to have hanging with cleaning oil.(except double-sided sealed type ball bearing)
    - Replace the ball bearing of which press-fitted part is slacked at the case or shaft.

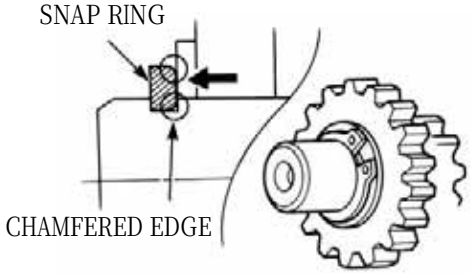


14. Pay attention to installation direction in case of the single-sided sealed ball bearing. Install the open-direction or double-sided sealed bearing in the way that the face marked with manufacturer and size should direct to the outer axle.



15. When blowing the ball bearing with compressed air after cleaning, keep the race from rotating. High speed rotation of the race may damage the bearing. Prior to installation, apply oil or grease to the bearing.

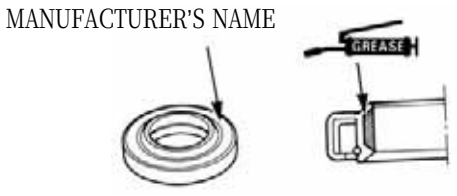
16. Install the snap ring so that chamfered side directs to the load-applied side. After installation, check the proper installation by rotating the snap ring.



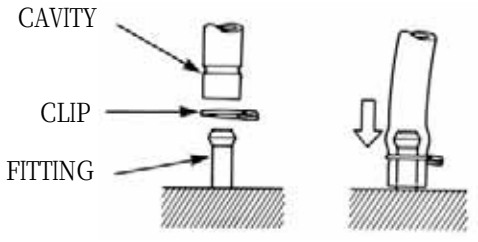
17. Check each part for proper tightening and operation after installation.

18. The brake fluid and coolant can damage the painted plastic or rubber parts. Keep these parts from contacting with them and wash these parts with water in case of contact.

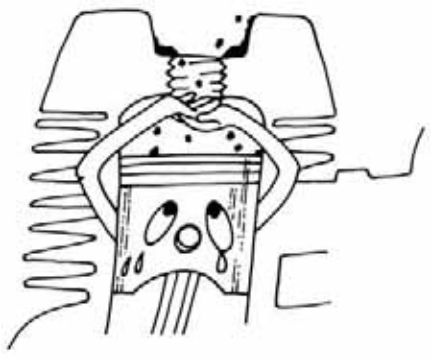
19. Install the oil seal so that the manufacturer marked surface directs outer surface.(direction not covered with oil)
    - Pay attention not to bend or damage the lip
    - Apply the grease to the lip



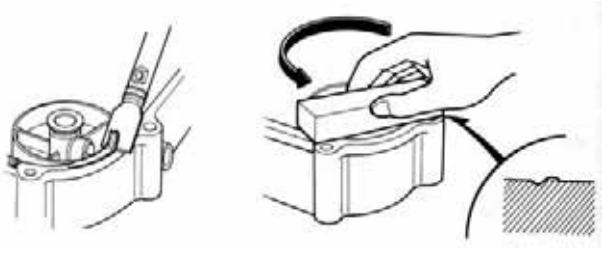
20. Connect the tube until the tube fully inserted in the joint. Install the clip if it is supplied. Replace the tube having slacked end.



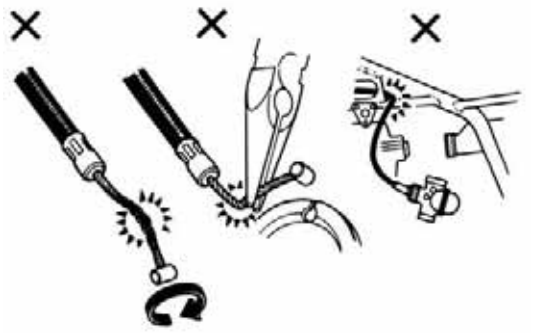
21. Keep the pneumatic system interior or the engine interior from the infiltration of dust.



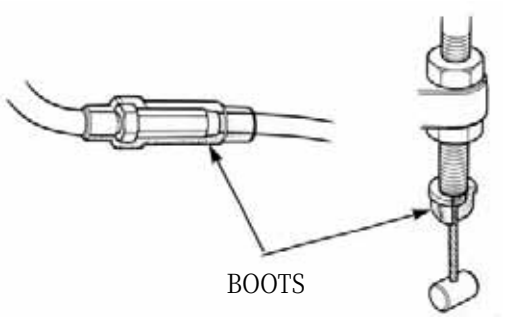
22. Install the gasket mounted in the contact surface of each case of the engine while removing gasket material completely. Remove damaged contact surface by wiping with the oil stone equally.



23. Pay attention not to bend the cable excessively. Transformed or damaged cable may cause malfunction or damage.

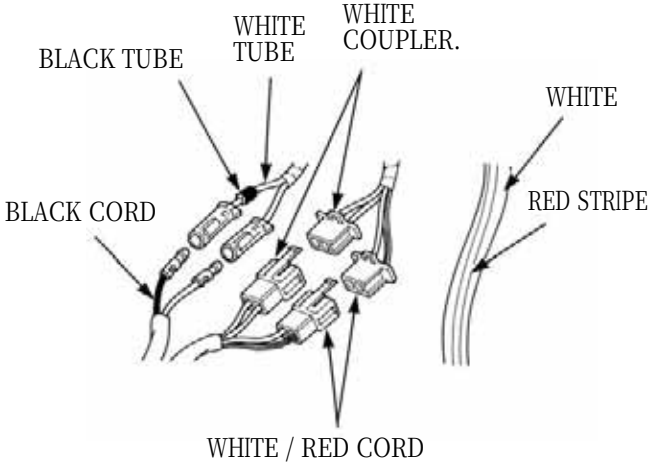


24. Install the boots with the installing groove by inserting the boots into the groove.

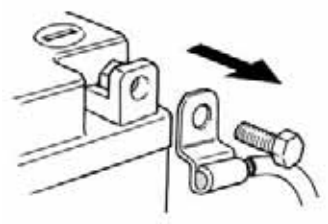


CAUTION WHEN WIRING

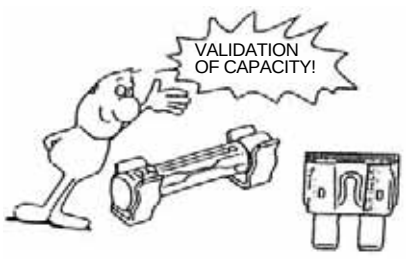
- Each cord must be connected depending on its color. When connecting different cord, attach color tube around the connector. Connect the coupler to the connector with same color and same pin number.
- Identify the two-colored cord by main color first and then spriped color .



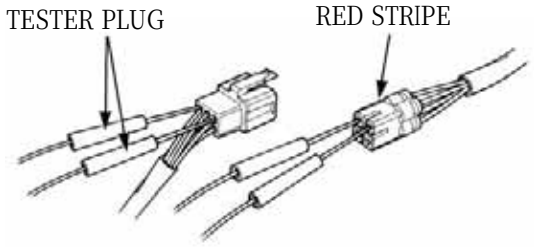
- When disconnecting the battery, the minus terminal must be disconnected first.
- Make sure that the tool such as spanner do not contact with the frame.



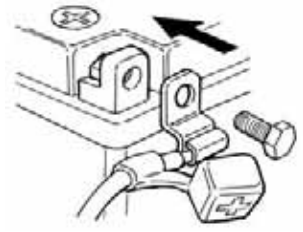
- If the fuse is short-circuited, find out the cause and repair. Replace with the fuse having the specified capacity.



- When measuring voltage or resistance of the cord terminal using tester, contact the tester plug behind of the coupler. Pay attention not to open the cord terminal and contact the tester plug from the front of the coupler in case of water-proof coupler.



- Recheck the condition of contact, securing and continuity of each part after maintenance.
- When connecting the battery, the plus terminal must be connected first.
- After connecting the terminal, apply the grease to the terminal.

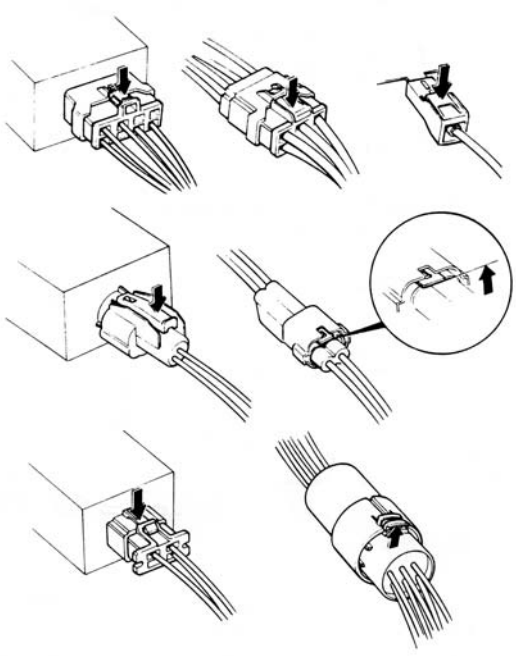


- Connect covers to the terminal after maintenance.

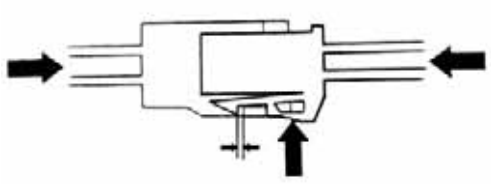
- If there is rust in the terminal, remove the rust with sand paper prior to connecting.

- Turn off the main switch before connecting/disconnecting.
- Release the lock to disconnect the lock of the coupler.
- The lock of the coupler has two types according to releasing method(press type and pull type) so release it properly according to the shape.

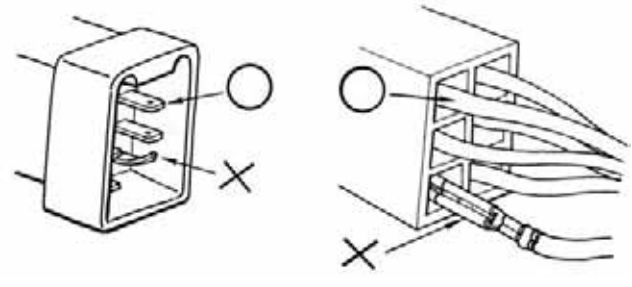
- Typical releasing method of the coupler is illustrated in the following.



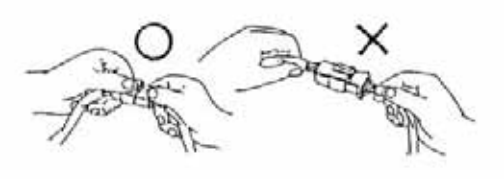
- Release the lock by inserting the coupler slightly and then narrowing connection to remove the coupler.



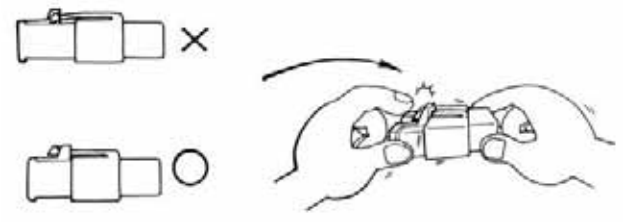
- Check to see if there is bended terminal and secure it to avoid disconnecting.



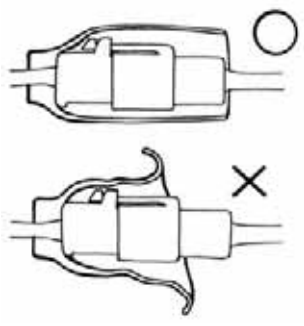
- When disconnecting the coupler, disconnect it while holding the coupler body. Pull while holding the wire harness cord and do not remove the coupler connection.



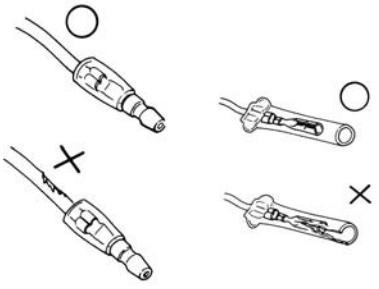
- Insert the lock of the coupler until the lock is fully secured.



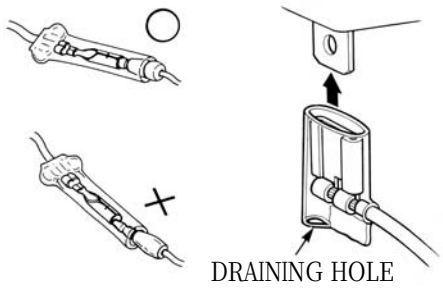
- Pay attention not to damage the vinyl cover of the coupler.



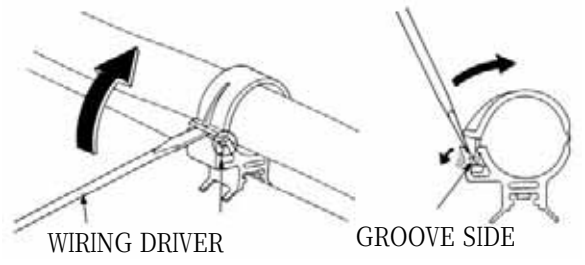
- If the wire harness coating is damaged, repair by winding vinyl tape or replace it.
- Prior to connecting the connector, make sure that the cover is not damaged and the mess terminal is not opened.



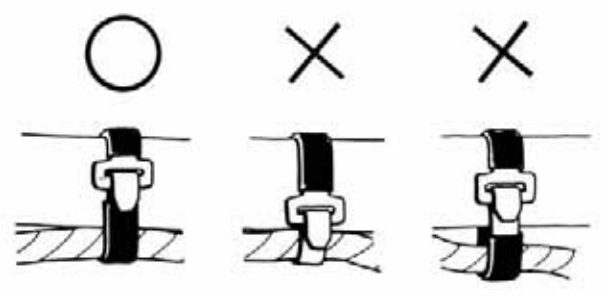
- Insert the connector until the vinyl cover is fully inserted into the terminal.
- The opening of the vinyl cover must face at the ground direction but in case of the plain connector, the draining opening must face at the sky direction.



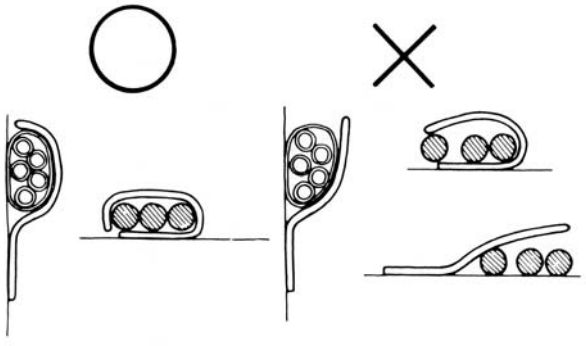
- When removing T-start, broaden the groove of T-start using the wiring driver and release the torque.
- Connect the harness and the hose to T-start and then insert until the groove is locked.
- When removing T-start from the frame, replace it with the new one.



- Wire band must be secured firmly in the specified location of the frame. In case of aluminium band, secure the wire harness to the coated part.

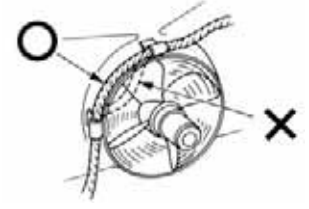


- Secure the wire harness firmly using the clamp.

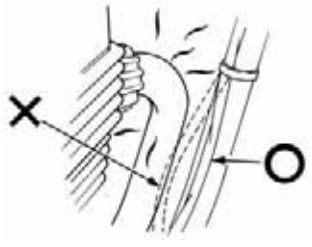


- In case of the weld clamp, do not clamp in the welded part.

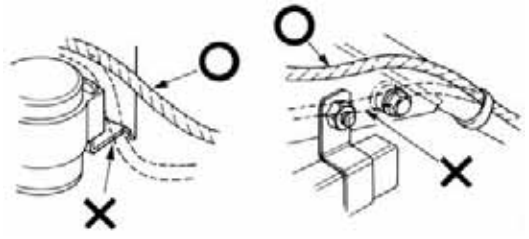
- When clamping the wire harness, make sure that the harness is not contacted with the shaft or rotating part.



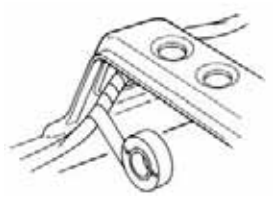
- When clamping the wire, pay attention not to contact with hot part.



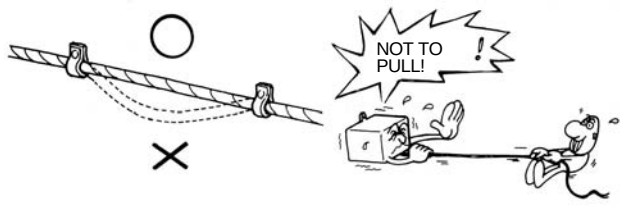
- The wire harness must be routed without contacting with the end of the lamp or any sharp edge.
- The wire harness must be routed without contacting with the end of the bolt or the piece.



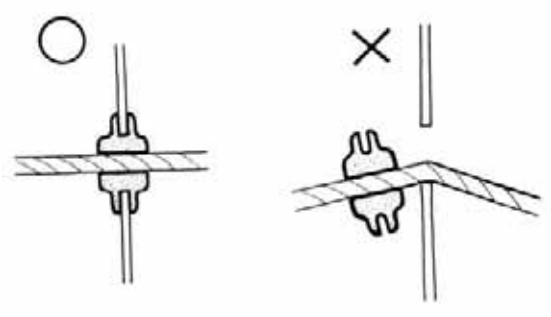
• In case that the wire harness is contacted with the end or the sharp edge, protect both parts with tube or tape.



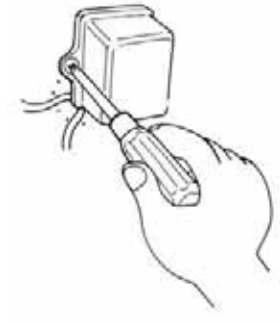
• The wire must not hang down or be pulled excessively.



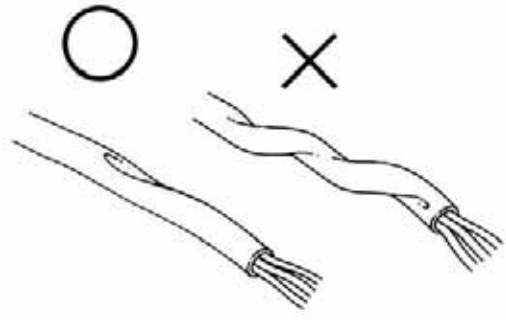
• If necessary, lock the wire harness properly.



• When mounting parts, make sure that the wire harness is not pressed by the parts.

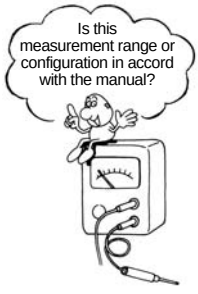


• Do not twist the wire harness.



• Wire the wire harness not to be pulled or expanded when the handle is turned to the right or the left completely. Avoid excessive bending or chewing and interference with the engine.

• Prior to using the tester, please read the manual carefully and understand the contents.
• When testing the resistance of the tester, the zero adjustment must be performed before testing.



• Do not drop or throw the parts especially semiconductor contained parts because these parts may be damaged by the impact of the drop.

2. INSPECTIONS/ADJUSTMENTS

SERVICE INFORMATION · · · 2-1
MAINTENANCE SCHEDULE · · 2-3
FUEL LINE · · · · · · · · · · 2-4
THROTTLE GRIP OPERATION · · 2-4
AIR CLEANER · · · · · · · 2-5
SPARK PLUG · · · · · · · · 2-5
VALVE GAP · · · · · · · · · 2-5
CYLINDER COMPRESSION PRESSURE · 2-6
CARBURETOR IDLING · · · · 2-7
TRANSMISSION OIL · · · · · 2-7
ENGINE OIL · · · · · · · · · 2-7
DRIVE BELT · · · · · · · · · 2-7
BRAKE FLUID · · · · · · · · 2-8
BRAKE PAD/SHOE · · · · · 2-8
SIDE STAND · · · · · · · · 2-9
SUSPENSION · · · · · · · 2-9
FASTENING BOLTS, NUTS · · · 2-9
WHEELS/TIRES · · · · · · · 2-10
STEERING STEM · · · · · · 2-10
BATTERY · · · · · · · · · 2-10
LUBRICATION POINTS · · · · 2-11

SERVICE INFORMATION

WARNING

- The exhaust gas contains poisonous substance. Do not keep engine idling in a closed or poorly ventilated place for a long period of time.
- Refer to the chapter 4 about the engine fluid
- Stand the main stand prior to the beginning work

EPAIR STANDARDS

THROTTLE GRIP DIFFE		2-6mm
SPARK PLUG		CR6HSA
SPARK PLUG GAP		0.6~0.7mm
VALVE GAP	IN	0.1mm
	EX	0.1mm
CARBURETOR IDLE SPEED		1,700±100rpm
CYLINDER COMPRES SION PRESSURE		10kg/cm²(600rpm)

TIRES

TIRE PRESSUR AT COLD ROLLING	ONE PERSON	F R O N T	2.00 kgf/cm²(28psi)
		R E A R	2.00 kgf · cm²(28psi)
	TWO PERSONS	F R O N T	2.00 kgf · cm²(28psi)
		R E A R	2.25 kgf · cm²(33psi)
TIRE SIZE		F R O N T	3.50 -10 51J
		R E A R	3.50 -10 51J

TORQUE

SPARK PLUG	1.2kgf · m
CYLINDER HEAD COVER BOLT	0.9kgf · m
VALVE ADJUSTING NUT	1.1kgf · m

TOOL

WRENCH 8×9mm
ADJUST WRENCH
COMPRESSION GAUGE

REGULAR INSPECTION SCHEDULE

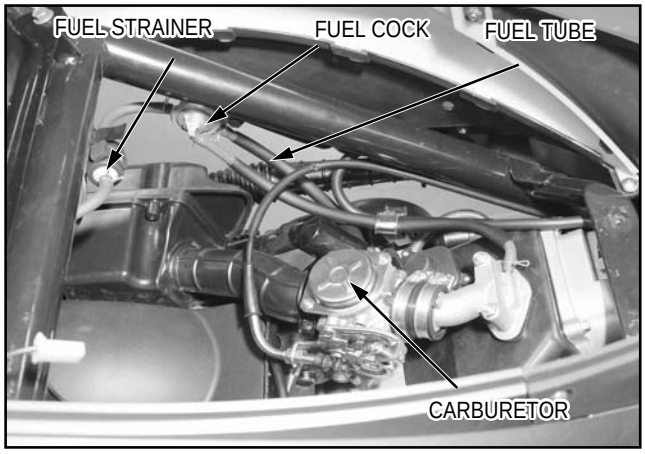
● Carry out pre-operation check at each scheduled maintenance period based on the information described in the owner's manual.
I : INSPECT AND CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY.
R : REPLACE L : LUBRICATE C : CLEAN

	FREQUENCY / ITEM	ODOMETER READING(NOTE 1)				NOTE
		500km	4,000km	8,000km	12,000km	
		1 month	6 months	12 months	18 months	
鞕	FUEL LINE(FUEL TUBE)	I	I	I	I	
鞕	THROTTLE GRIP OPERATION		I	I	I	
	AIR CLEANER	C	C	R	C	NOTE 2
	SPARK PLUG	I	I	I	I	
鞕	VALVE GAP	I	I	I	I	
	TRANSMISSION OIL				R	NOTE 3
	ENGINE OIL	R	R	R	R	
鞕	ENGINE OIL FILTER SCREEN	C	C	C	C	
鞕	CARBURETOR IDLE SPEED	I	I	I	I	
鞕	DRIVE BELT		I	I	I	
鞕	WEIGHT ROLLER		I	I	I	
鞕	SLIDE PIECE		I	I	I	
鞕鞕	GREASING AT INNER PART OF MOVABLE DRIVE FACE		L	L	L	
	BRAKE FLUID		I	I	I	NOTE 3
	BRAKE SHOE/PAD WEAR	I	I	I	I	
	BRAKE SYSTEM	I	I	I	I	
鞕	BRAKE STOP SWITCH		I	I	I	
鞕	HEADLIGHT ADJUSTMENT	I	I	I	I	
	SIDE STAND		I	I	I	
鞕	SUSPENSION		I	I	I	
鞕	BOLTS, NUTS, FASTENERS	I		I		
鞕鞕	WHEELS/TIRES		I	I	I	
鞕鞕	STEERING HEAD BEARING	I	I	I	I	NOTE 3

* If there are no appropriate type of tools and maintenance data available, or if you do not have mechanical technology contact authorized maintenance shops, dealers or other designated repair shops for maintenance and inspections.
** To ensure safety, inspections and maintenance of these parts must be carried out by authorized maintenance shops, dealers or other designated repair shops.

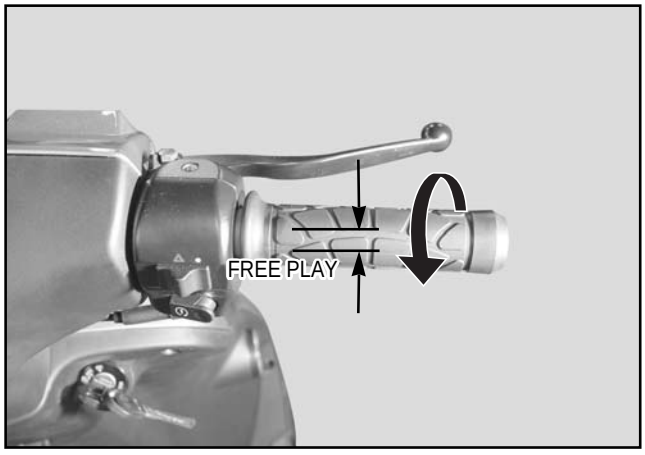
NOTE

1. After the odometer reading exceeds 12,000km, repeat maintenance service at intervals indicated in the table.
2. After riding in areas with high humidity or pollution, carry out maintenance service more frequently.
3. Replace every 2 years. Proper technology is required for this job.



FUEL LINE(FUEL TUBE)

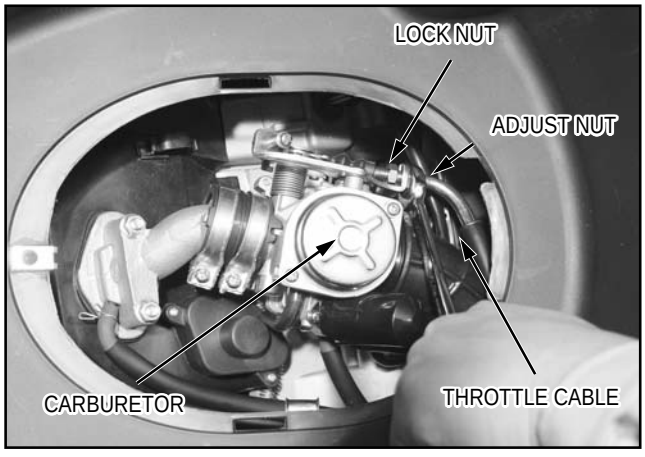
- Remove the luggage box.
- Check the fuel line connected to the fuel cock and carburetor. If the fuel line is cracked, damaged or leaks, replace it.



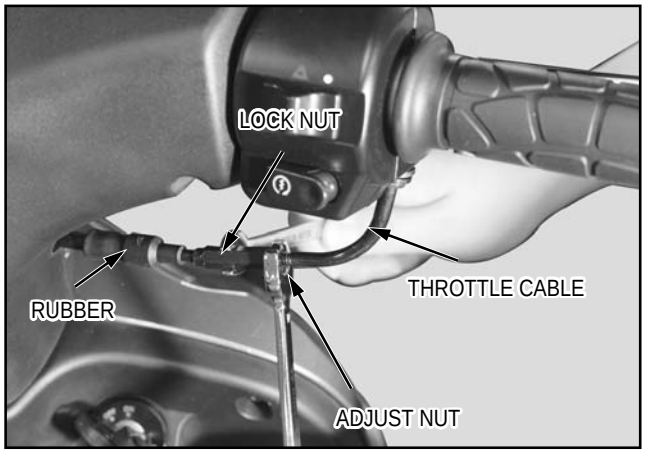
THROTTLE GRIP OPERATION

- Check to see if the throttle grip operates smoothly in any steering position.
- If the throttle grip does not operate properly, check the throttle cable for aging, damage or kinking.
- Check the throttle grip free play.

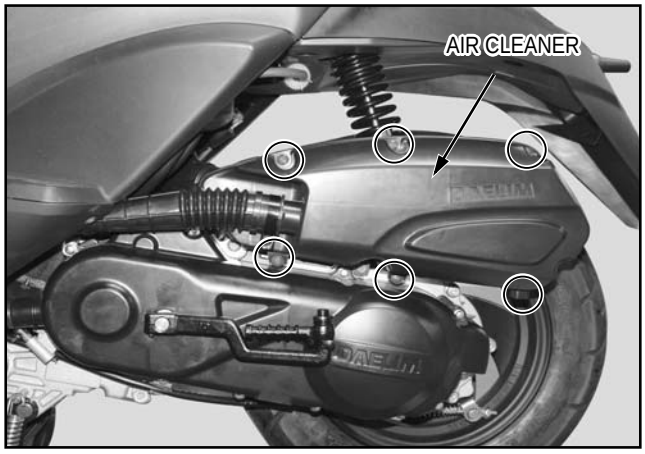
FREE PLAY : 2~6 mm



- For main adjustment of the throttle grip freeplay, adjust the nut on the carburetor side.
- Loosen the lock nut, turn the adjuster nut and adjust of it.

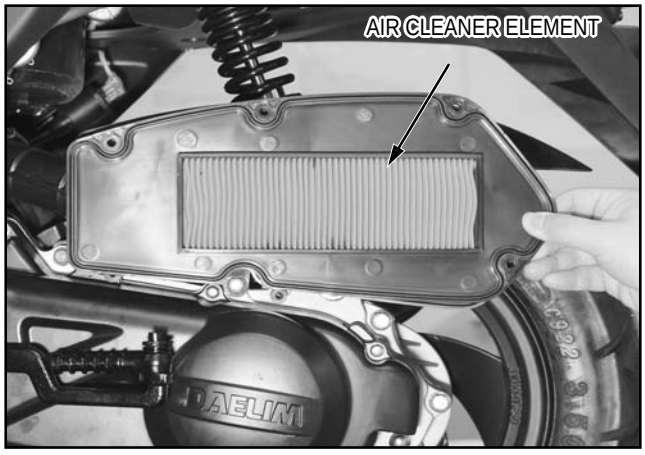


- For minute adjustment, to adjust the adjuster nut under the throttle grip.
- Remove the rubber.
- Loosen the lock nut, turn adjuster nut and adjust of it.



AIR CLEANER

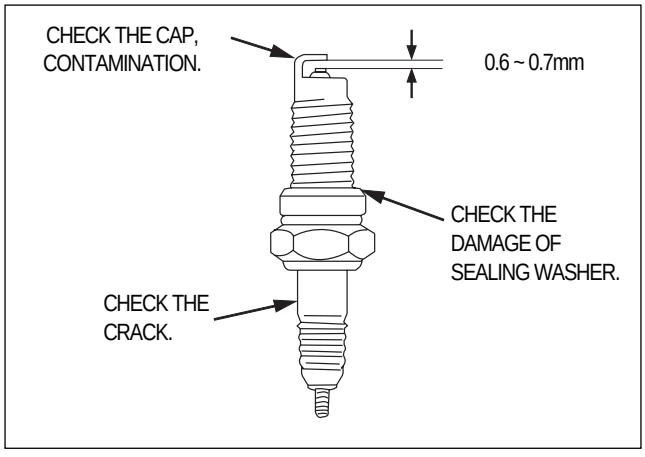
- Loosen the 6 screws securing the air cleaner case cover and remove it.



- Remove the air cleaner element.
- Check the element, if it is dirty or damaged, replace it .

CAUTION

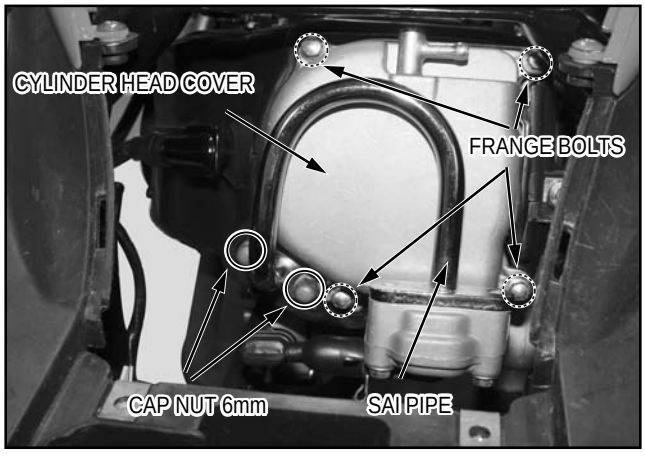
- Clean away dirt by tapping slightly the paper element if its surfae has very dirty or there is much dirty on it. Also, blow away dirt sticked to the surface of filter from the inner side (carburetor) of the filter.



SPARK PLUG

- Remove the center cover.
- Remove the spark plug cap and disassemble the plug.
- If the spark plug is severely contaminated or damaged, replace with a new one. If the plug can be reused after removing only carbon, use plug cleaner and wire brush to clean the plug.
- Always use the feeler gauge to check the gap.

GENUINE PLUG : CR6HSA
SPARK PLUG GAP : 0.6~0.7mm
TORQUE :1.2 kgf · m

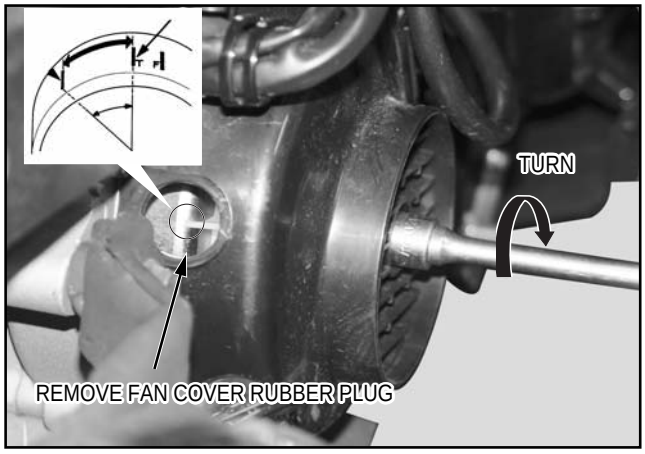


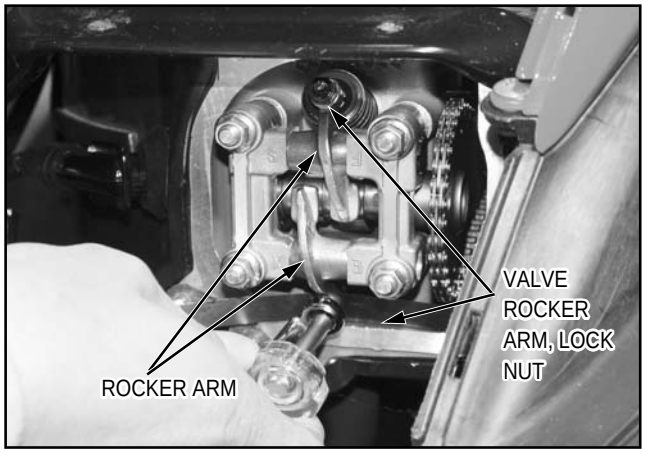
CAUTION

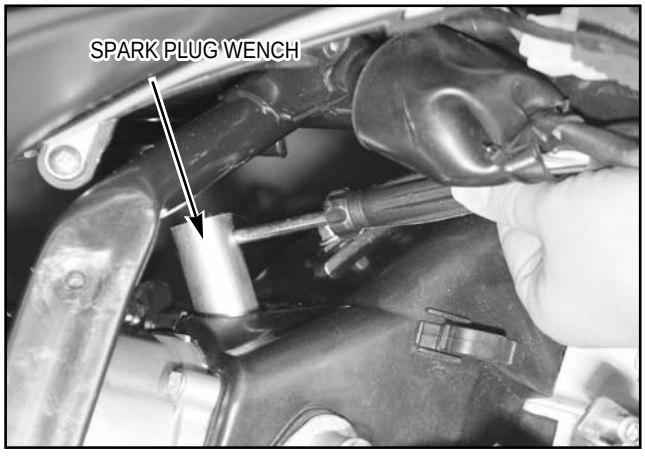
- First, assmeble it temporarily by hand and tighten completely the spark plug by using of the spark plug wrench.

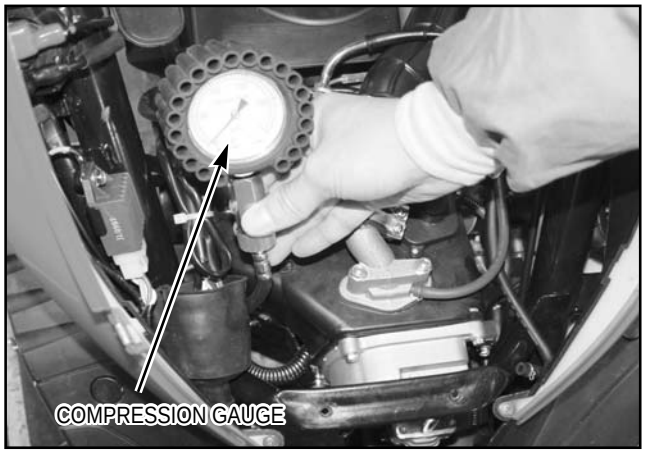
VALVE CLEARANCE

- Remove luggage vox
- Remove center cover
- Disassemble 4 cylinder head cover bolts
- Disassemble 2 cap nut 6mm









CAUTION

- Inspect and adjust the valve clearance when the engine is cold(35℃).
- Remove cooling fan cover.
- Turn the flywheel counterclockwise , and align the "T" mark of the flywheel with index mark of the RH. crankcase cover.
- Verify that the piston is located at the top dead center.

● Measure the valve clearance with feeler gauge.

VALVE CLEARANCE : INTAKE 0.1±0.02MM
EXHAUST0.1±0.02MM

● Loosen the lock nut with a valve wrench,and set valve clearance to the prescribed level by turning the adjusting screw with a valve adjusting wrench,and tighten the lock nut.
● After setting clearance to the prescribed level, hold the adjuster screw with a valve adjusting wrench,and tighten the lock nut.
TORQUE :1.1 kgf.m
TOOL: WRENCH 8X9 MM
ADJUST WRENCH
FILLER GUAGE
● Measure the valve clearance again.
● Install the cylinder head cover and tighten the bolts.
TORQUE :0.9 kgf · m

CYLINDER COMPRESSION PRESSURE

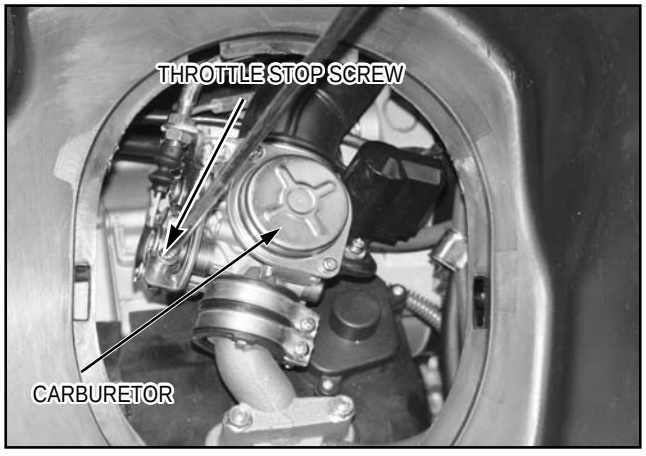
● Start and warm up the engine.
● Stop the engine, and remove the spark plug cap and spark plug.
● Install the compression gauge.
● Open the throttle completely, and crank the engine with the starter motor until the gauge reading rising.
TOOL : COMPRESSION GAUGE

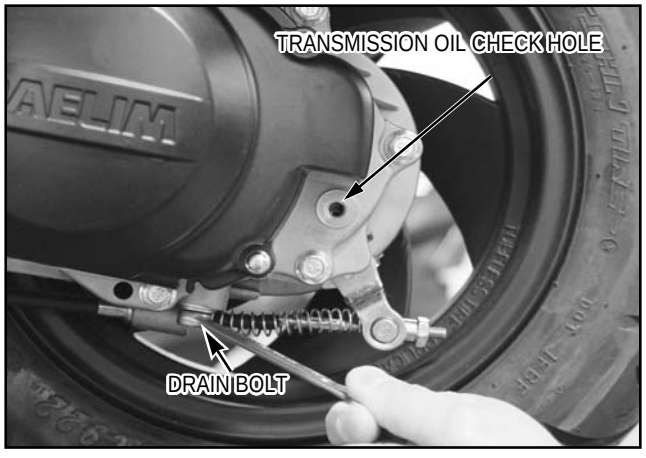
NOTE

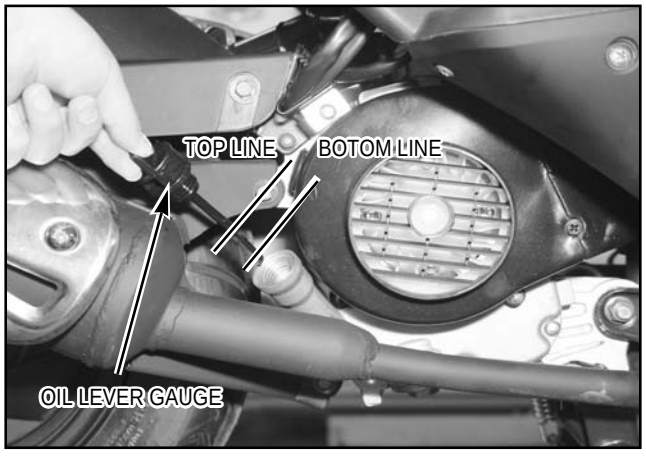
- The maximum reading is usually reached within 4~7 seconds.

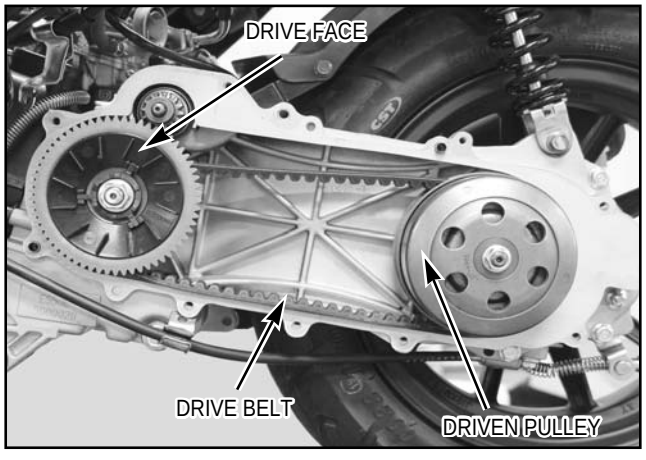
COMPRESSION PRESSURE : 10 kgf/cm² (600RPM)

● If the pressure is low, check the following:
-Inadequate valve clearance adjustment
-Valve leakage
-Leakage from the cylinder head gasket
-Piston/ cylinder worn.
● If pressure is high, check the following:
-Carbon deposits on the piston head, and cylinder head









CARBURETOR IDL SPEED

- Turn the main key to the left , disassemble the lock nut and raise up the seat.
- Remove the carburetor maintenance cover on the luggage box.
- Connect to the ignition code
- Meet the speficied RPM by adjusting the throttle stop screw with the ⊕ screw driver.

NOTE

- Erect the motorcycle on the main stand.
- After checking all engine adjustments whether satisfying cifications, adjust them.
- Heat the engine to make accurate idling inspection and adjustment.
- Turn the throttle stop screw and make adjustments to the prescribde speed.
  IDLE : 1,800±100 rpm

CAUTION

- Do not excessive adjustment the pilot screw it could be effect to starting.
- Refer to the page 5-9 for adjusting the pilot screw.

TRANSMISSION OIL

INSPECTION

- Loosen the oil check blot and measure the oil level.
- If the oil level is low, add the oil(SAE80W-90).
- Tighten the oil check bolt.
  TRANSMISSION OIL CAPACITY : 0.12 L

NOTE

- Make sure that the oil sealing washer is in good condition.
- Replace the transmission when it is contaminated seriously.
- Erect the transmission when it is contaminated seriously.

ENGINE OIL

INSPECTION

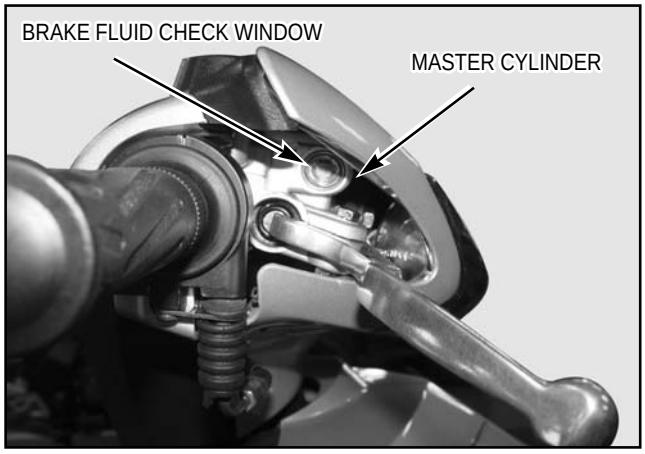
- Warm up the engine so that heat up the engine oil fully.
- Stop the engine and loosen the oil level gauge then, check the oil level.
- It is good if the oil surface is between the lower level line and upper that of the sight glass. If the oil level is near the lower level line or below that, refuel the recommended oil to the upper level line.
  ENGINE OIL CAPACITY : 0.8 L

NOTE

- Erect the motorcycle on the main stand and try.

DRIVE BELT

- Remove the 2 air cleaner mounting bolts.
- Remove the kick arm.
- Remove the LH. Crankcase cover.
- Check the drive belt for excessive wear or damage
- Check the schedule maintenance period, replace the new drive belt if possible.

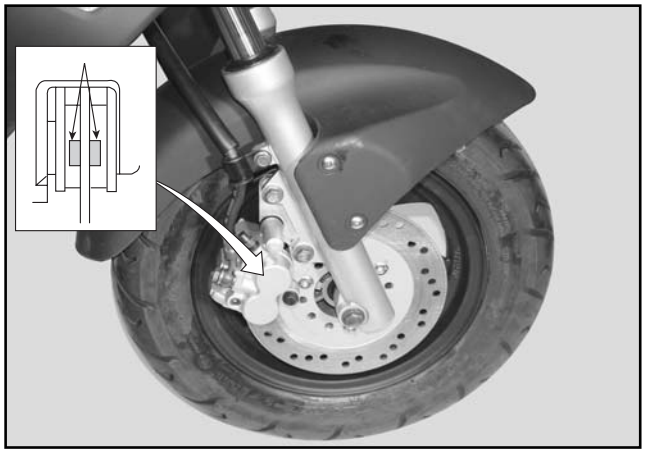


BRAKE FLUID

- Check the oil level of front master cylinder.
- I f the oil level is near the lower limit level , remove the oil cup cap, diaphragm and fill DOT3 or DOT4 brake fluid to the top limit line.
- If the brake fluid reaches to the lower limit line, check the leaking of the brake system entirely.

NOTE

• If the brake pad is worn severely, brake fluid level can be down.



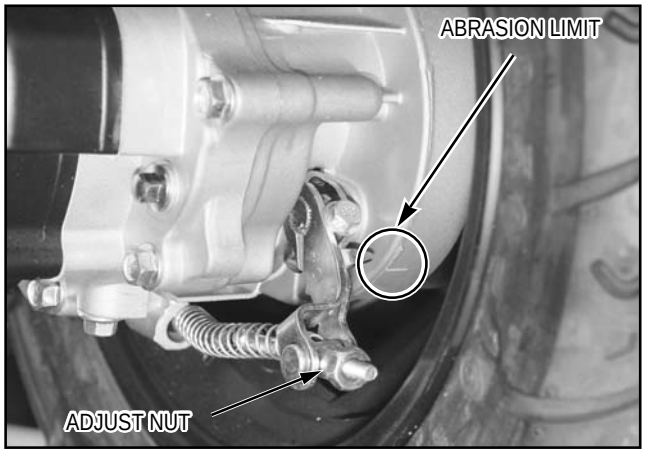
BRAKE PAD / SHOE

BRAKE PAD REPLACEMENT

- Check the brake pads for wear.
- If the red mark on the pad reaches to the brake disk, replace the pads.
- Check the front brake hose for crack and damage, replace it immediately if the brake fluid leaks.

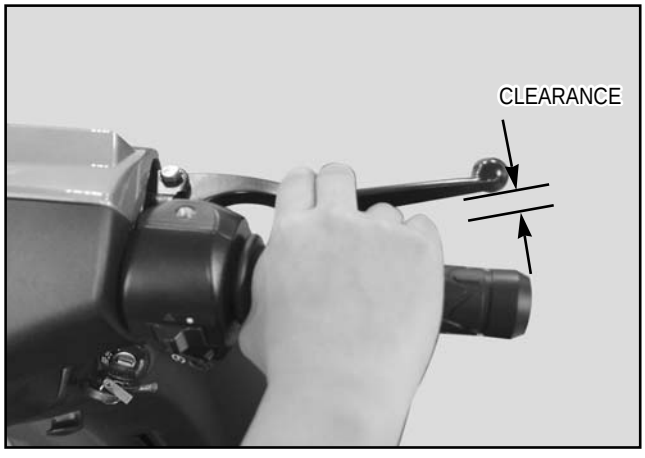
NOTE

• Replace the brake pads in sets.



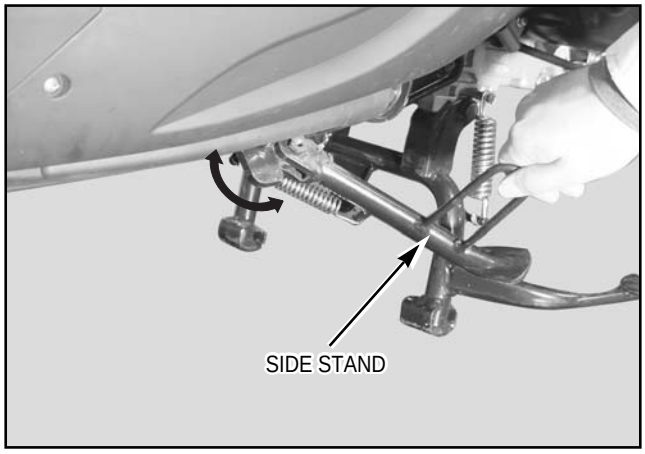
BRAKE SHOE REPLACEMENT

- If the arrow mark of the wear limit with the indication mark when the parking brake lever is tightly depressed, it indicates the brake lining has reached to the service limit. Replace the brake shoes.
- Adjustment of rear brake tolerance.
  - Adjust the tolerance by turning adjust nut.



BRAKE LEVER CLEARANCE

- Check the clearance after pulling the lever.
  FRONT: 10~20 MM
  REAR : 10~20 MM



SIDE STAND

- Erect the main stand.
- If pull the lower end of side stand by hand, check whether it moves smoothly.
- If it doesn't move freely, pour grease into its pivot side.
- If it moves too freely, check the side stand spring.
- Check the axial movement of side stand.

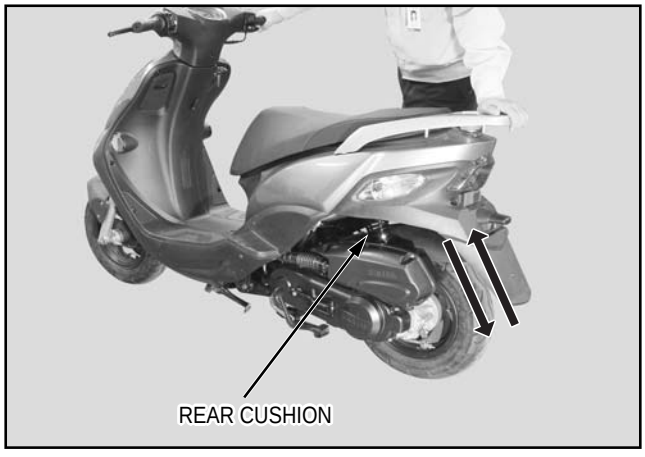
SUSPENSION

NOTE

- Do not ride motorcycle with an unsatisfactory suspension.
- Loosen or worn suspension parts will lead to deterioration in the vehicle's safety and operation efficiency.

FRONT WHEEL

- Hold the brake lever, and compress the front cushion up and down several times to check the efficient operation.
- Check the front fork for oil leakage, parts damage or looseness.



REAR WHEEL

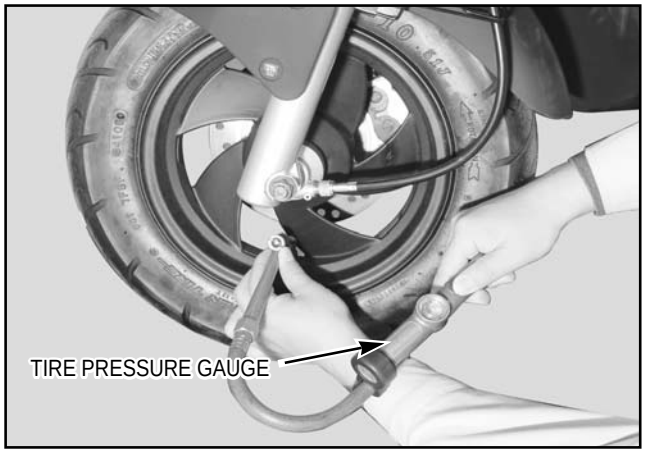
- Compress the rear cushion up and down several times to check the operating conditions.
- Check the front fork for oil leakage, parts or looseness.

STEERING STEM

NOTE

- Check the cable if it interferes with the handle operation.

- Lift the front wheel and check if the handle moves right and left smoothly.
- If the handle moves heavily, check if the cable or electric codes interfere with the handle. If the handle moves normally, remove the steering stem and check the ball race for being worn or damaged.



WHEELS / TIRES

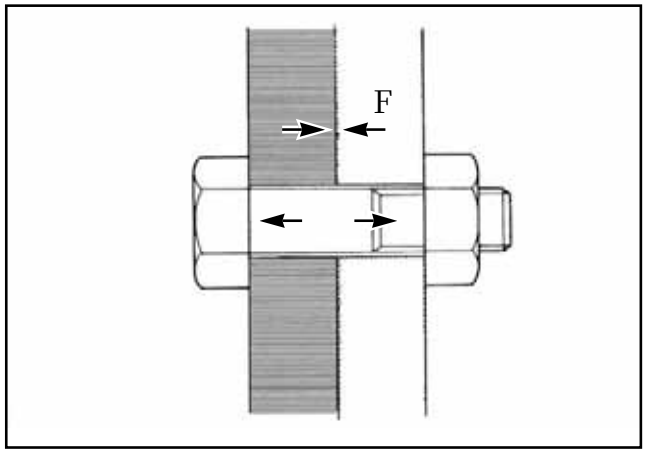
NOTE

- Check the tire pressure when the tires have been cooled off. Check the thread (the part making contact with the road surface)and side for being worn, cracked or damaged. Replace damaged tires.

STANDARD PRESSURE

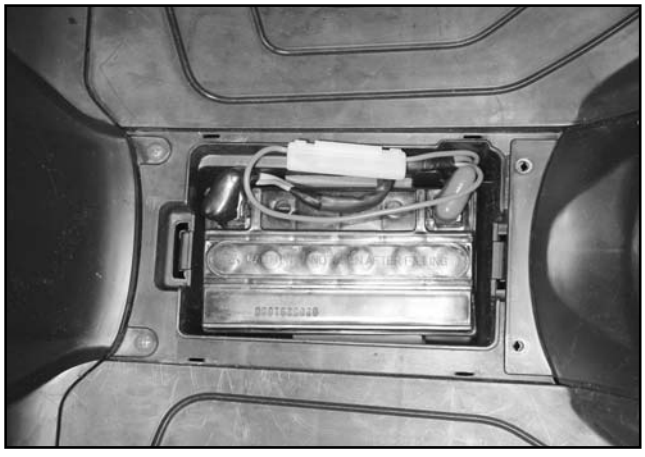
kgf/㎠(psi)

ITEM	FRONT WHEEL	REAR WHEEL
DRIVER ONLY	2.00(28psi)	2.00(28psi)
DRIVER AND A PASSENGER	2.00(28psi)	2.25(32psi)



FASTENING BOLTS, NUTS

- Meeting the schedule of regular inspection,
- Check whether the nuts, bolts of all vehicles are fastened by specified torques.
- Check all pins, clips, hose clamp and cable stay



BATTERY

- Remove the battery cover.
- Check the looseness of the terminals.
- If the terminals are loose, check and clean the contacted area.

- Measure the battery voltage
  - COMPLETE CHARGING :12.6~13.0 V
  - INCOMPLETE CHARGING : UNDER 12.9 V
- If the terminal part get rusted, remove the battery and pour the warm water then, clean it with a wire brush.

LUBRICATION POINTS

Unless specifically designated, use generd grease to lubricate the lubrication points.
For stiding parts not shown here, add oil or grease.

CONTROL CABLE LUBRICATION

Remove and clean regularly the upper assembly of the throttle cable, and apply oil.
If the cable has expanded, replace it.

MEMO

3. EXTERNAL PARTS

SERVICE INFORMATION · · · 3-1
ASSEMBLY-DISASEMBLY PRECEDURE 3-2
SEAT · · · · · · · · · · · · · 3-2
LUGGAGE BOX · · · · · · · · 3-3
REAR CARRIER · · · · · · · · 3-3
CENTER COVER · · · · · · · · 3-3
BODY COVER · · · · · · · · · 3-4
REAR FENDER · · · · · · · · 3-4
FLOOR SIDE COVER · · · · · · 3-5
FLOOR PANEL · · · · · · · · 3-5
UNDER COVER · · · · · · · · 3-6
FRONT COVER · · · · · · · · 3-6
INNER BOX · · · · · · · · · · 3-7
FRONT FENDER COVER · · · 3-7
FRONT UNDER COVER · · · · 3-8
FRONT HANDLE COVER · · · 3-8
REAR HANDLE COVER · · · · 3-8
SPEEDOMETER · · · · · · · 3-9
REAR WHEEL MUD GUARD · · 3-9
REAR SPLAER COVER · · · · 3-9
MUFFLER · · · · · · · · · · 3-9

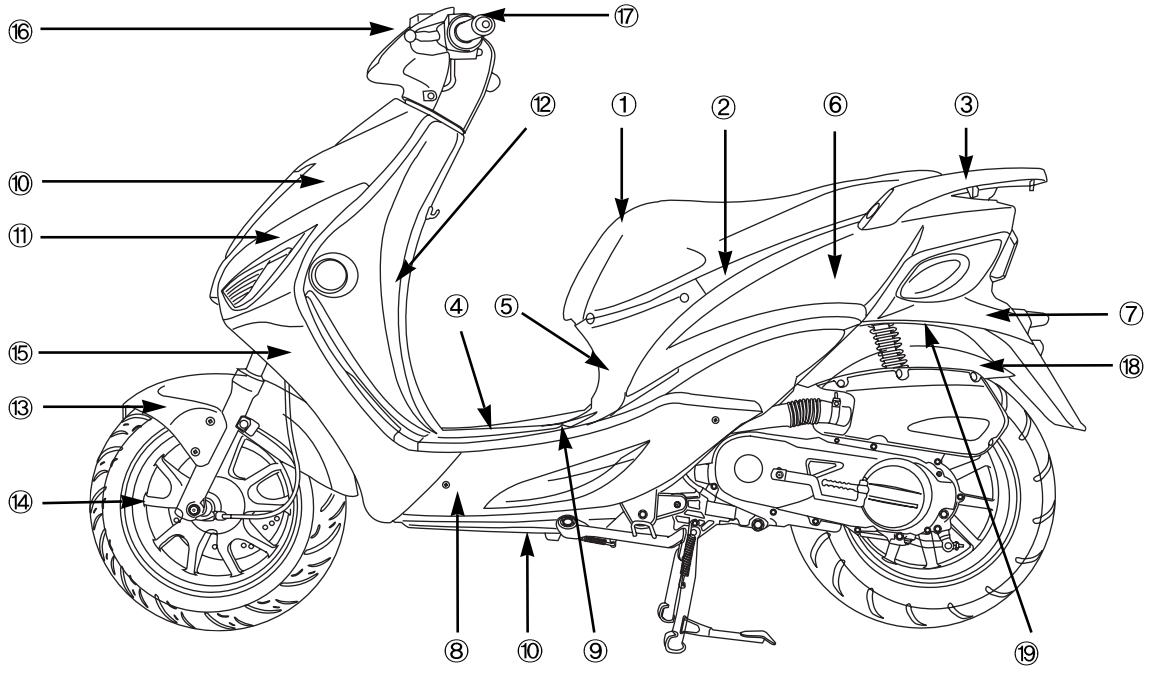
SERVICE INFORMATION

CAUTION

- This section describes external parts removal / installation
- Do not apply unreasonable force when disassembling or assembling covers to prevent their possible damage.
- Because the muffler is hot, do not service it immediately after the engine is stopped.
- When diassembling the front wheel, be careful about the turn over of the vehicle

MAINTENANCE PROCEDURE

NAME OF FRAME COVERS



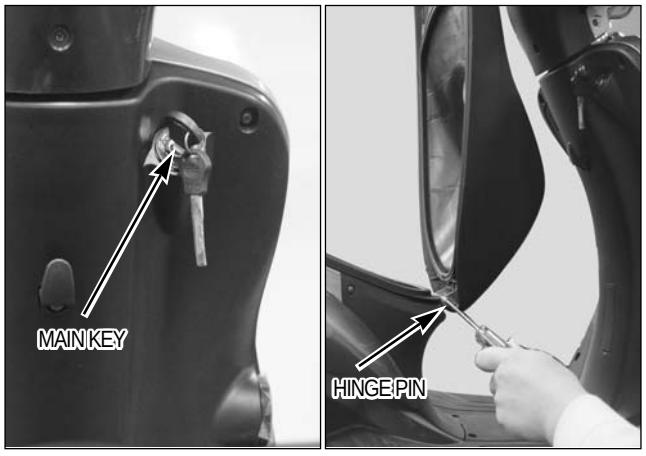
FLOW CHART(ASSEMBLY/DISASSEMBLY)

● This chart shows arrows connected in the order of disassembling covers

① SEAT	⑥ BODY COVER	⑪ FRONT COVER	⑯ FRONT HANDLE COVER
↓	↓	↓	↓
② LUGGAGE BOX	⑦ REAR FENDER	⑫ INNER BOX	13. REAR HANDLE COVER
↓	↓	↓	↓
③ REAR CARRIER	⑧ FLOOR SIDE COVER	⑬ FRONT FENDER	14. REAR WHEEL MUDGUARD
↓	↓	↓	↓
④ BATTERY COVER	⑨ FLOOR PANEL	⑭ FRONT WHEEL	15. REAR SPLASH COVER
↓	↓	↓	
⑤ CENTER COVER	⑩ UNDER COVER	⑮ FRONT UNDER COVER	

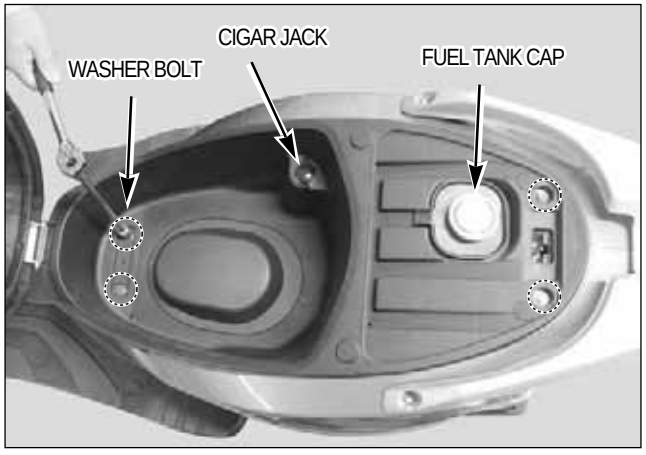
NOTE

- At disassembling front wheel, be careful for the turn over of the vehicle.



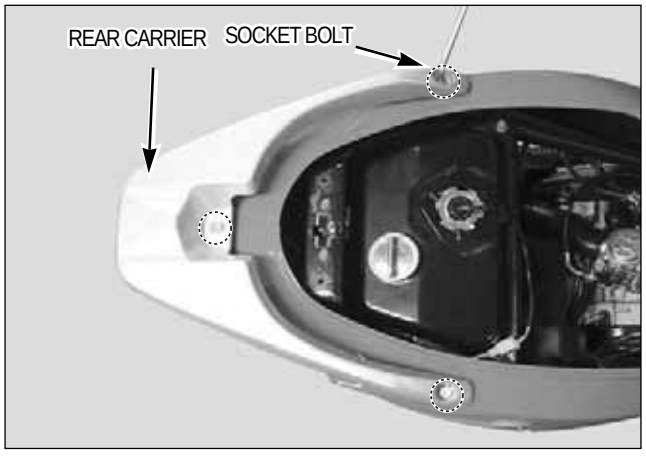
SEAT REMOVAL / ASSEMBLY

- Unlock the seat lock by turing the main key to the left.
- Disassemble the frange nut and hinge pin
- Remove the seat
- Install in the reverse order of removal



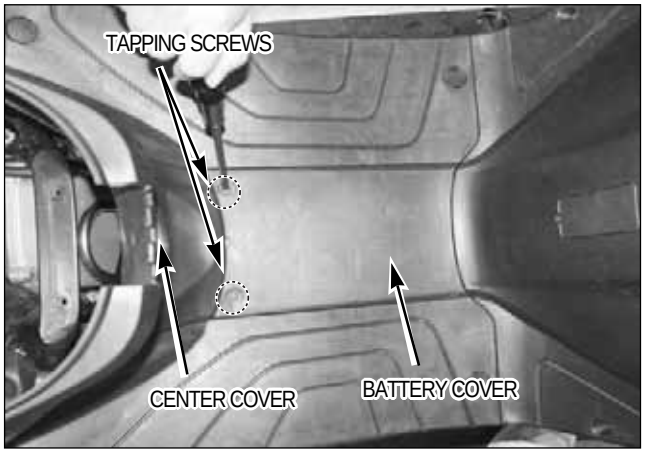
LUGGAGE BOX REMOVAL / ASSEMBLY

- Loosen 4 washer bolts in the luggage box
- Loosen the fuel tank cap
- Lifting up the luggage box, loosen cigar jack coupler
- Loosen the luggage box
- Install in the reverse order of removal



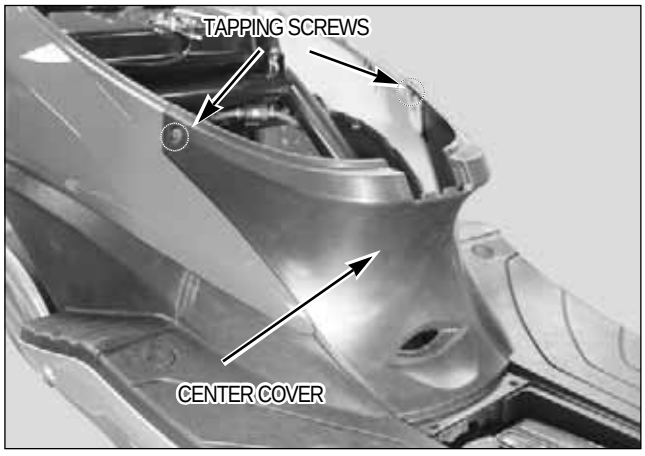
REAR CARRIER REMOVAL / ASSEMBLY

- Loosen 3 socket bolts
- Loosen rear carrier
- Install in the reverse order of removal.



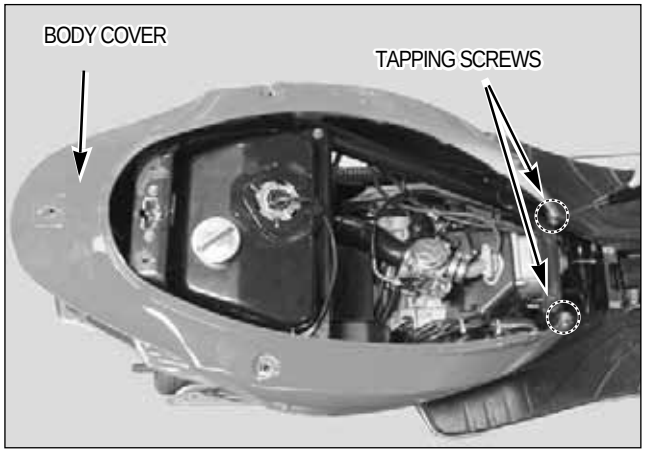
CENTER COVER REMOVAL / ASSEMBLY

- Loosen 2 tapping screws of battery cover, then loosen Battery cover .
- Loosen 2 tapping screws.



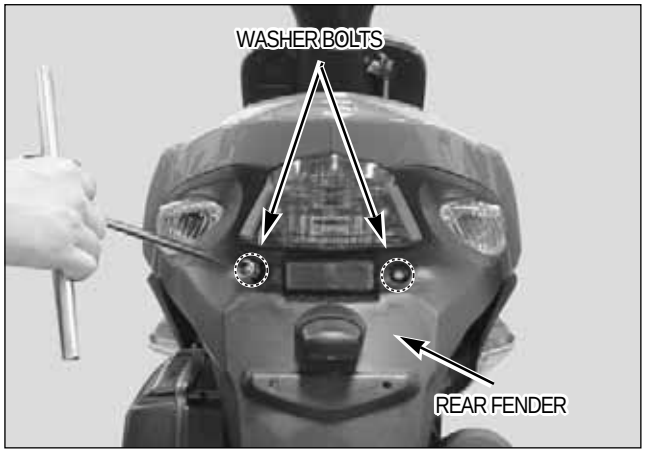
- Loosen center cover
- Install in the reverse order of removal

.

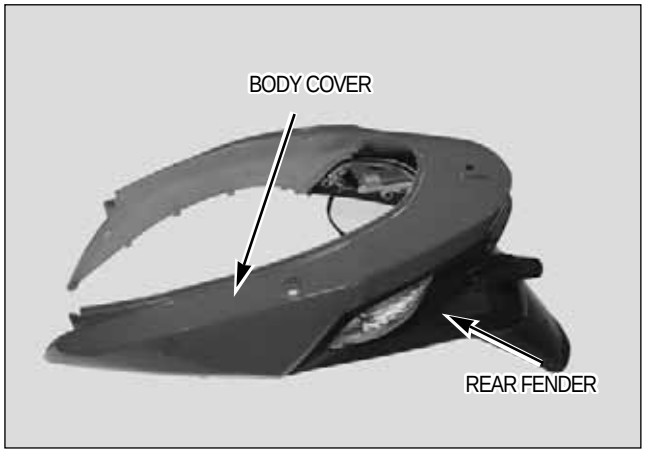


BODY COVER REMOVAL / ASSEMBLY

- Remove luggage box
- Remove rear carrier
- Loosen 2 tapping screws being installed at the RH / LH body side cover.

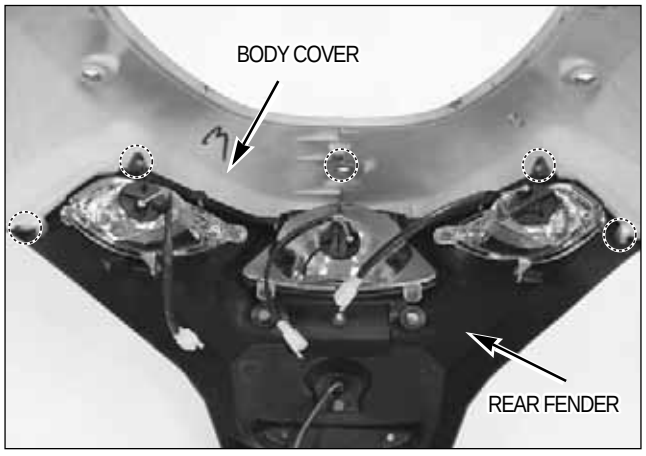


- Loosen 2 washer bolts installed from rear fender
- Disassemble tail light codes, then on condition that rear fender is installed, by pulling back and opening left-right sides, disassemble body cover.
- Install in the reverse order of removal.

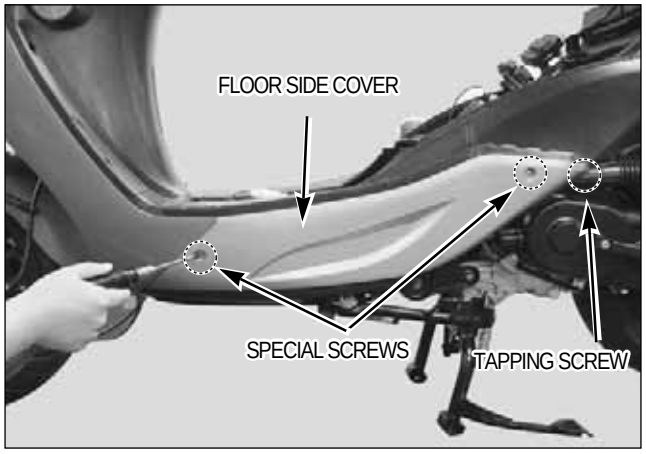


REAR FENDER REMOVAL / ASSEMBLY

- Remove body cover.

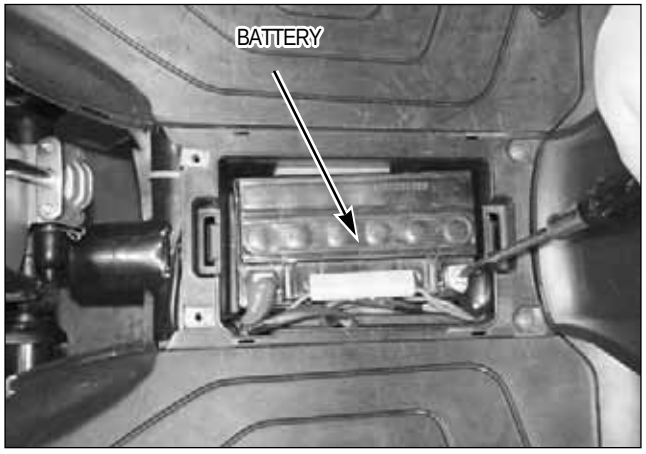


- Loosen 5 tapping screws installed at body cover and Disassemble rear fender
- Install in the reverse order of removal



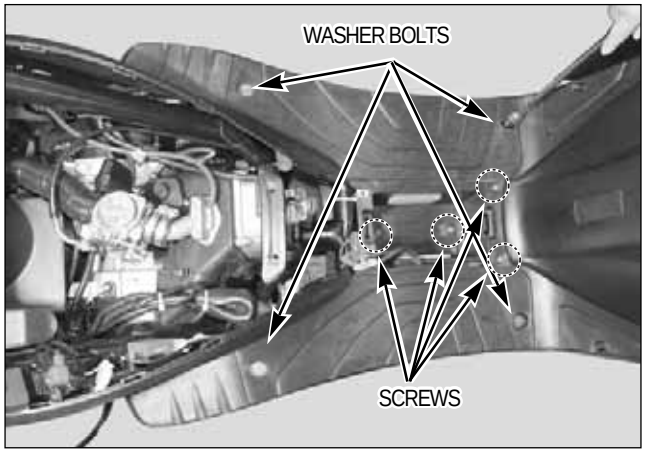
FLOOR SIDE COVER REMOVAL / ASSEMBLY

- Loosen 4 left-right special screws of floor side
- Loosen 2 tapping screws installed at left and right of floor side cover
- Disassemble floor side covers of RH/LH
- Install in the reverse order of removal.

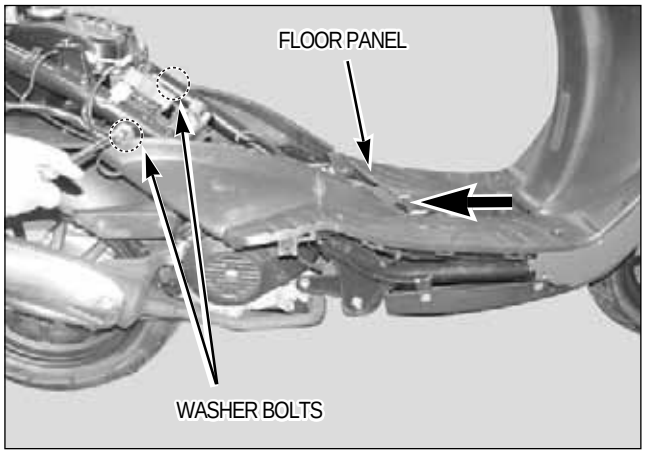


FLOOR PANEL REMOVAL / ASSEMBLY

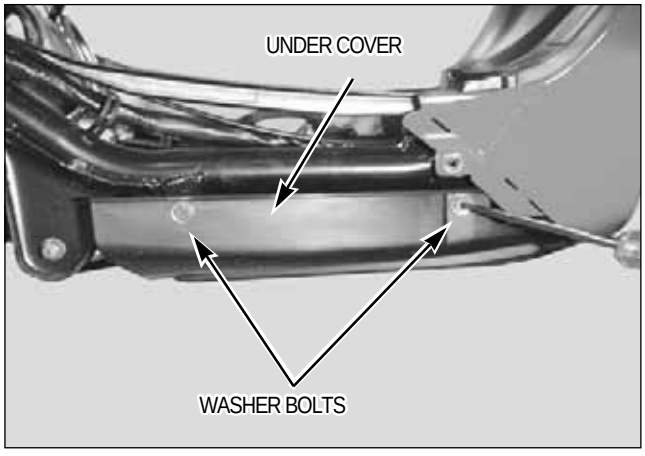
- Remove battery cover
- Remove center cover
- Remove body cover
- Disassmble floor side cover
- Remove battery.



- Disassemble 4 floor panel caps
- Loosen 4 washer bolts
- Loosen 2 screws and 2 special screws installed at floor panel.

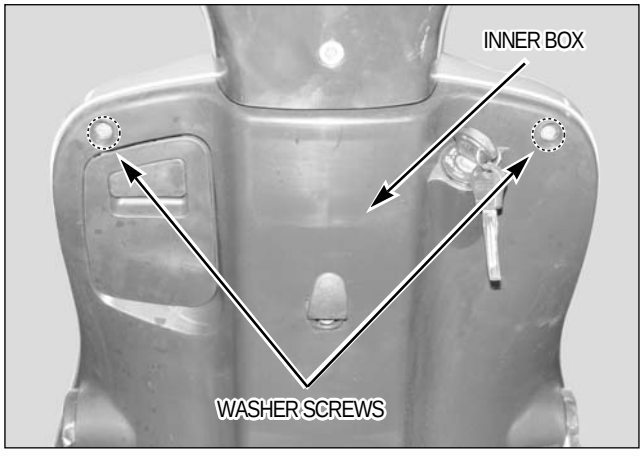


- Untie 2 washer bolts in the side of floor panel.
- Pull backward and disassemble floor panel.
- Install in the reverse order of removal.



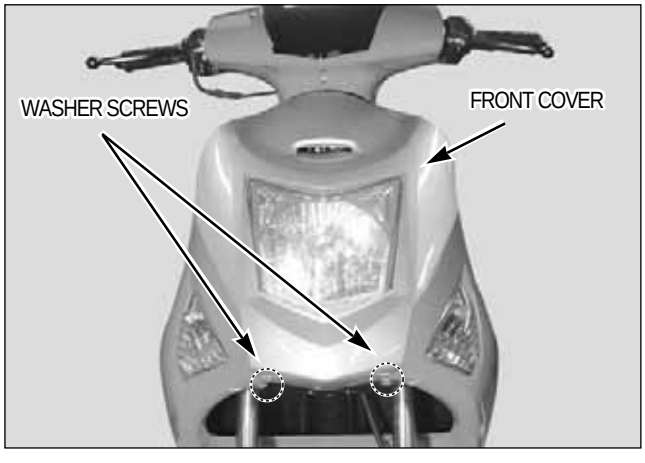
UNDER COVER REMOVAL / ASSEMBLY

- Disassemble floor side cover.
- Loosen 4 left-right washer bolts installed at under cover.
- Disassemble under cover.
- Install in the reverse order of removal.

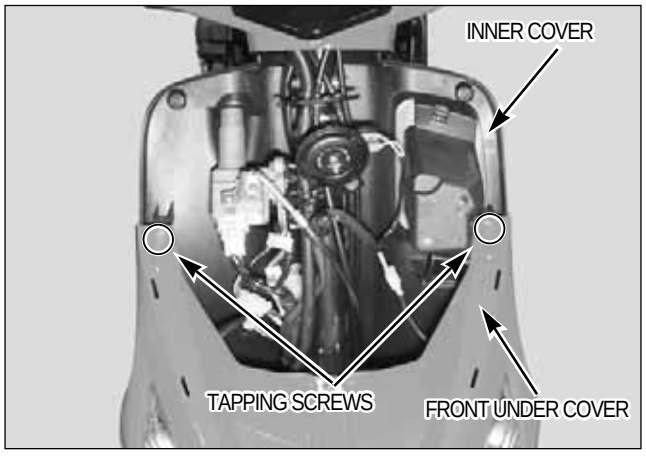


FRONT COVER REMOVAL / ASSEMBLY

- Loosen 2 washer screws installed at inner box.

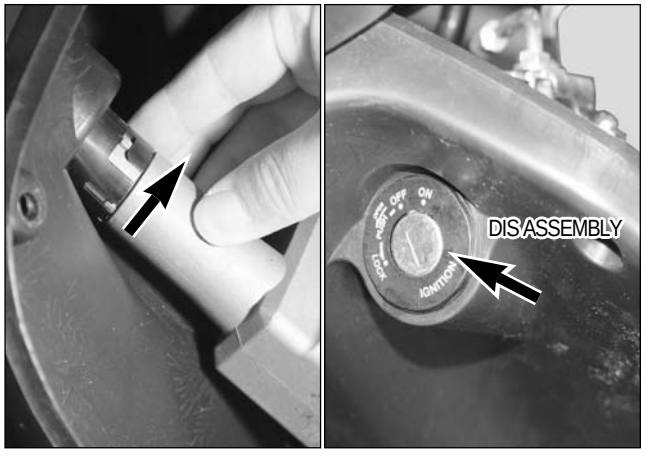


- Loosen 4 washer screws installed at front cover.
- Disassemble head light coupler.
- Disassemble front cover.
- Install in the reverse order of removal.

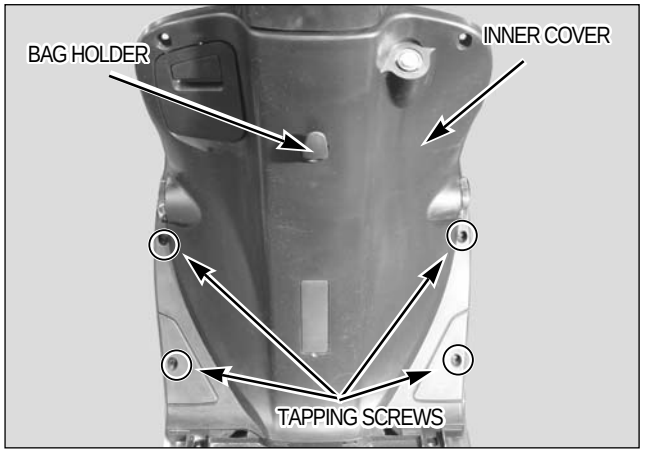


INNER BOX REMOVAL / ASSEMBLY

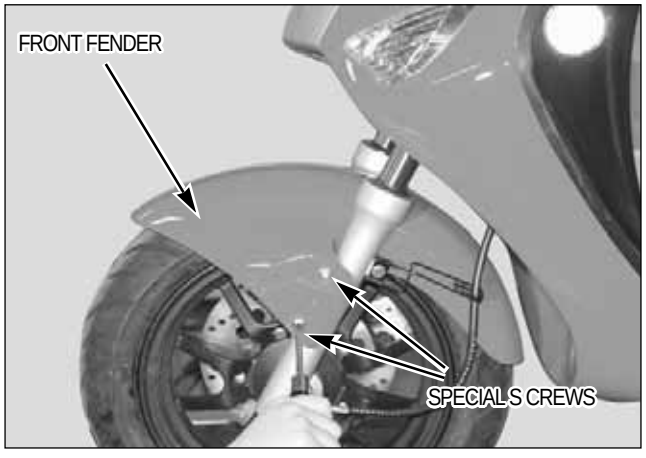
- Remove the following parts.
  ① Luggage box
  ② Rear carrier
  ③ Center cover
  ④ Body cover
  ⑤ Floor side cover
  ⑥ Floor panel
  ⑦ Front cover
- Loosen 2 tapping screws installed at front under cover.



- Loosen main key cap by turning it

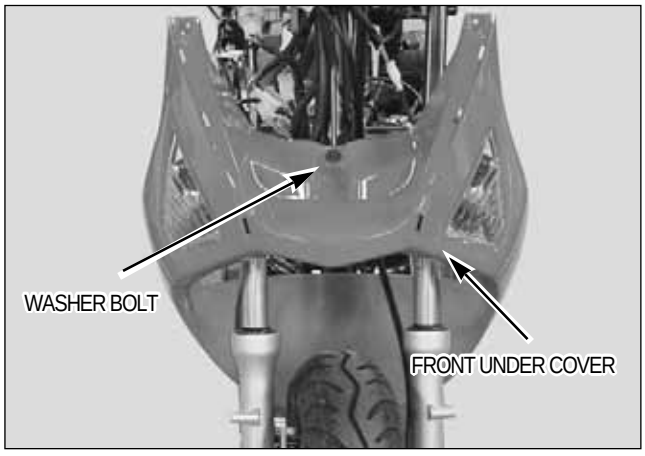


- Disassemble 4 tapping screws installed at inner box
- Loosen step bolt installed at back holder
- Diassemble inner box
- Install in the reverse order fo removal.



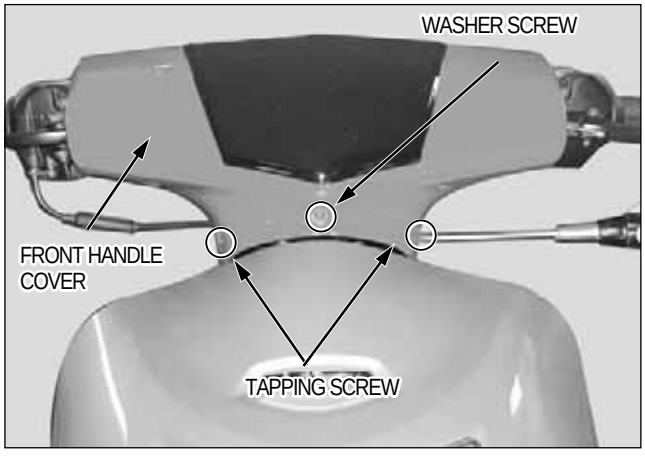
FRONT FENDER COVER REMOVAL / ASSEMBLY

- Loosen 4 left-right special screws installed at front fender
- Disassemble front fender
- Install in the reverse order of removal.



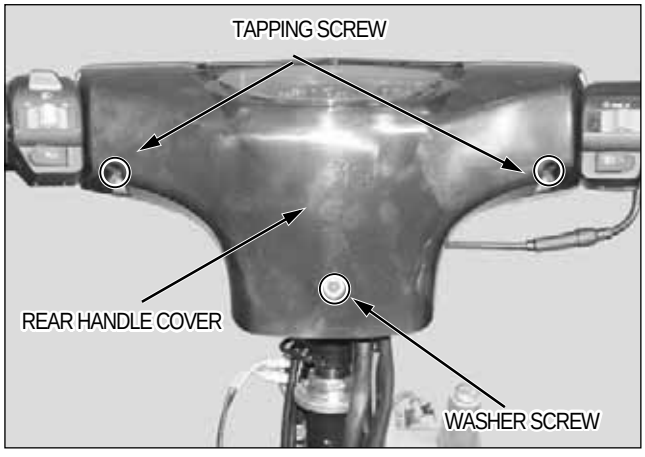
FRONT UNDER COVER REMOVAL / ASSEMBLY

- Disassemble the following parts.
  - Front cover, Front fender / Front wheel
- Untie washer screw, tapping screw installed on inner cover.
- Untie 1 washer bolt installed at front under cover.
- Disassemble front under cover.
- Install in the reverse order of removal.

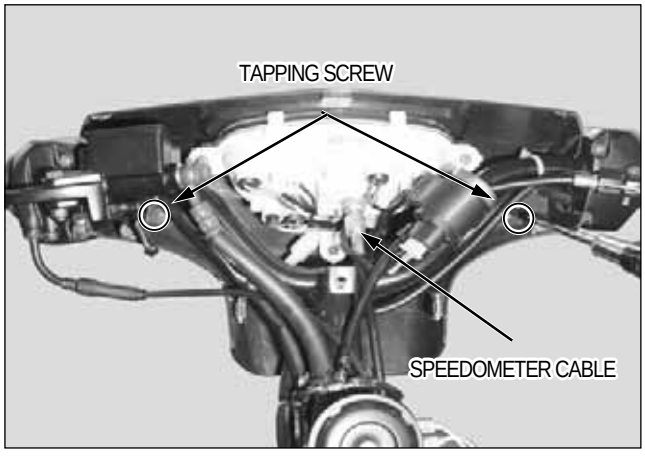


FRONT HANDLE COVER REMOVAL / ASSEMBLY

- Untie 1 washer screw, 2 tapping screws installed at front handle cover.

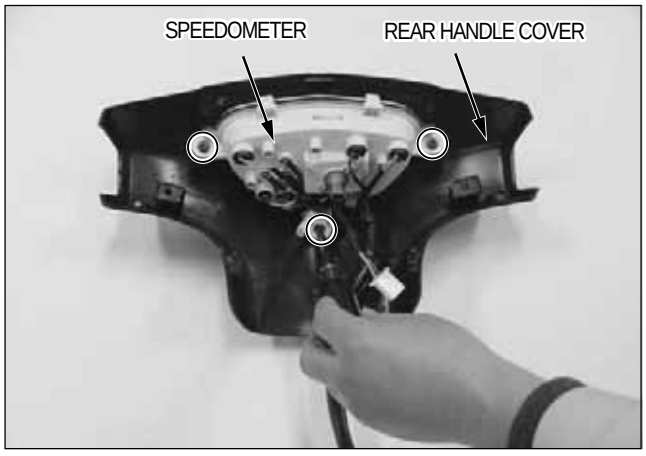


- Untie 2 tapping screws installed at rear handle cover.
- Disassemble front handle cover after disconnecting left, right winker couplers.
- Install in the reverse order of removal.



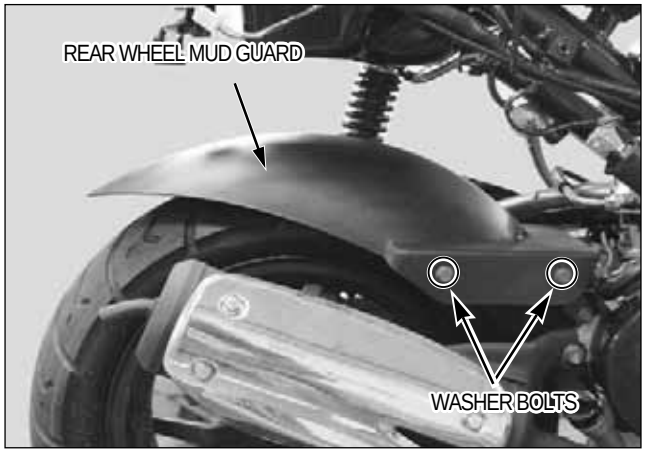
REAR HANDLE COVER REMOVAL / ASSEMBLY

- Separate front handle cover.
- Untie 2 tapping screws installed at rear handle cover.
- Separate speedometer cable.
- Separate speedometer codes.
- Separate rear handle cover.
- Install in the reverse order of removal.



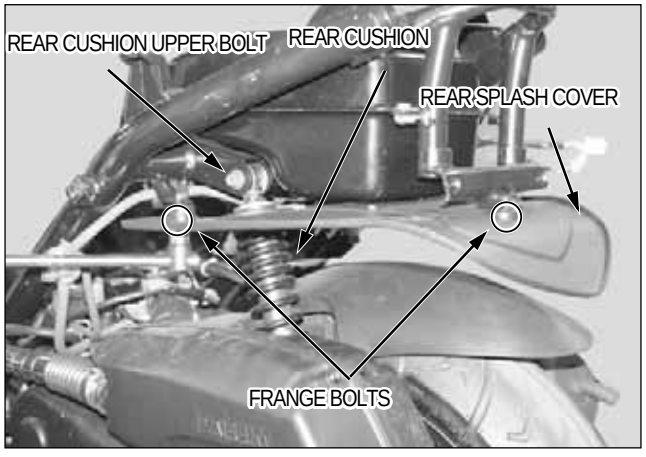
SPEEDOMETER REMOVAL / ASSEMBLY

- Disassemble front handle cover.
- Disassemble speedometer cable.
- Disconnect coupler and wires.
- Disassemble rear handle cover.
- Disassemble 3 tapping screws and speedometer cover.
- Disasemble speedometer.
- Install in the reverse order of removal.



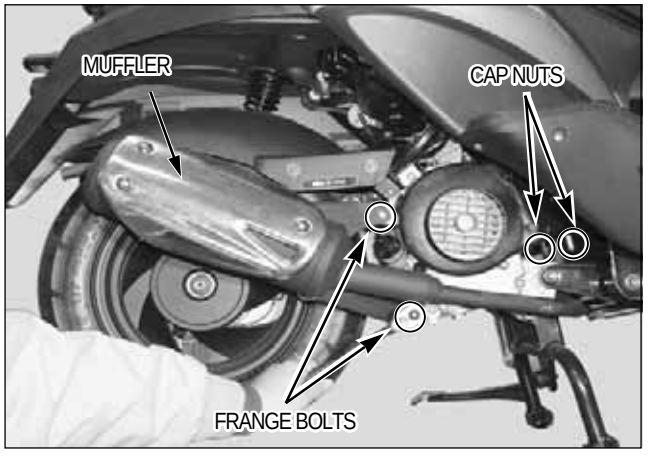
REAR WHEEL MUD GUARD REMOVAL / ASSEMBLY

- Untie 2 washer bolts installed at rear wheel mud guard of RH side.
- Untie 1 washer bolt installed at mud guard after disassembling air cleaner of LH side.
- Disassemble rear wheel mud guard.
- Install in the reverse order of removal.



REAR SPLASH COVER REMOVAL / ASSEMBLY

- Disassemble the following parts.
  -Luggage box
  -Center cover
  -Body cover
- Untie 3 flange bolts installed at rear splash cover.
- Untie rear cushion upper bolt.
- Disassemble rear splash cover.
- Install in the reverse order of removal.



MUFFLER REMOVAL / ASSEMBLY

- Untie 2 flange bolts installed at muffler comp.
- Untie two 6 mm cap nuts installed at cylinder head.
- Disassemble muffler by pulling slightly it downward.
- Install in the reverse order of removal.

CAUTION

• Because the muffler is hot, do not repair promptly at the stop of vehicle.

MEMO

4. LUBRICATION SYSTEM

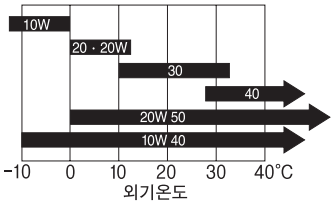
SERVICE INFORMATION · · · 4-1
TROUBLE SHOOTING · · · · 4-1
ENGINE OIL LEVEL CHECK · · · · · 4-2
REPLACEMENT OF ENGINE OIL · · 4-3
OIL FUMP · · · · · · · · · · 4-3
TRANSMISSION OIL · · · · · · · 4-5

SERVICE INFORMATION

WARNING

- The exhaust gas contains poisonous substance. Do not keep engine idling in a closed or poorly ventilated place for a long time.
- Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods.
- It is not desirable to handle used oil frequently ; however, wash your hands thoroughly with soap and water immediately after handling the used oil.
- The oil pump can be serviced without removing the engine from the frame.

ENGINE OIL

OIL CAPACITY	0.85L(at disassembling) 0.70L(at changing)	 Temperature to the air
RECOMMENDED OIL	DAELIM Geguine oil API Service classification SL grade Viscocity : 10W - 40 (Use appropriate type of oil with viscocity satisfying the atmospheric temperature. In your riding area based on the table shown on the right side)	

TRANSMISSION OIL

OIL CAPACITY	0.12L(Full capacity) 0.10L(at changing)
RECOMMENDED OIL	DAELIM Geguine mission oil or SAE 80W/90

TORQUE VALUES

TAPPET ADJUSTING HOLE CAP	1.5kgf · m
OIL PUMP BOLT	1.1kgf · m
OIL DRAIN PLUG BOLT	2.5kgf · m

TROUBLE SHOOTING

Oil level low

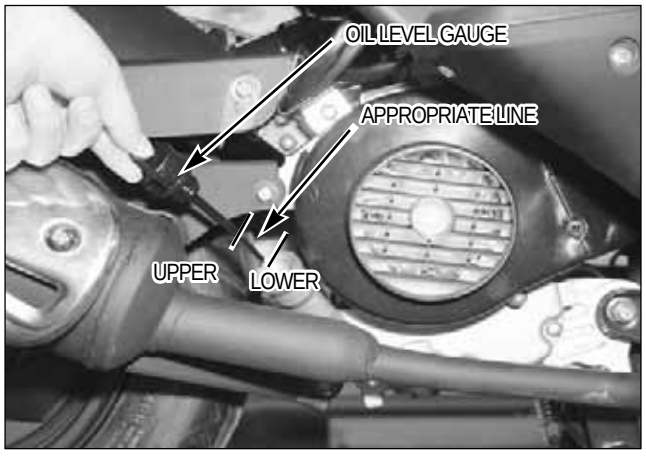
- Natural oil consumption
- External oil leaking
- Worn piston ring or incorrect piston ring installation
- Worn valve guide or valve stem seal

Oil contamination

- Oil or filter not changed often enough
- Faulty cylinder head gasket
- Piston ring worn

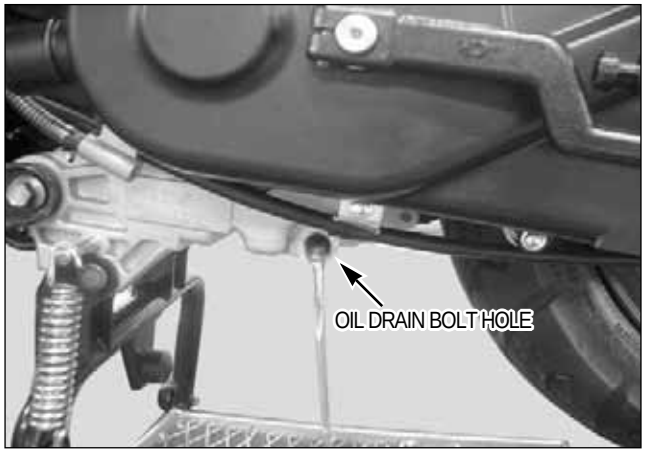
Low or no oil pressure

- Clogged oil filter screen
- Incorret oil used



ENGINE OIL LEVEL CHECK

- Erect the motorcycle on the main stand.
- Start the engine and let it be warm fully.
- Stop the engine, remove the oil gauge
- Check the oil level line. If the engine oil is insufficient, add the engine oil.



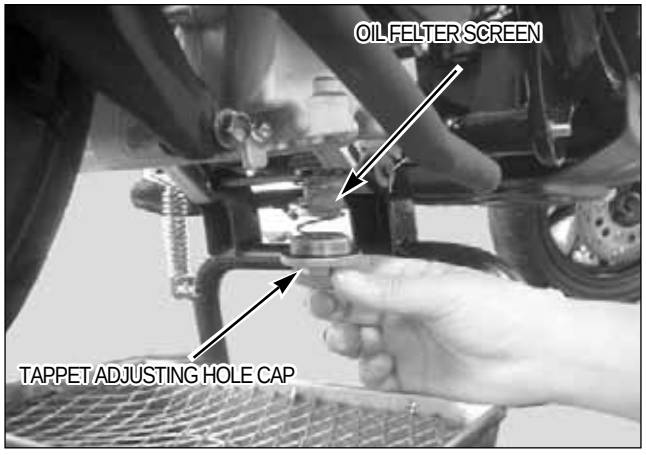
ENGINE OIL CHANGE

NOTE

- Make the engine warm and erect the motorcycle with side stand in order to assure complete and rapid draining.

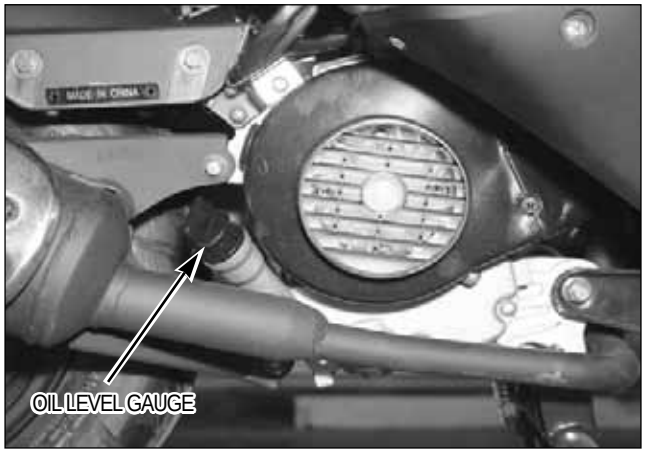
- Loosen the drain oil bolt and drain the engine oil.
- Start the kick starter arm for several times to drain any oil which may be left in the engine.
- Tighten the engine oil drain bolt.

TORQUE : 2.5 kgf · m

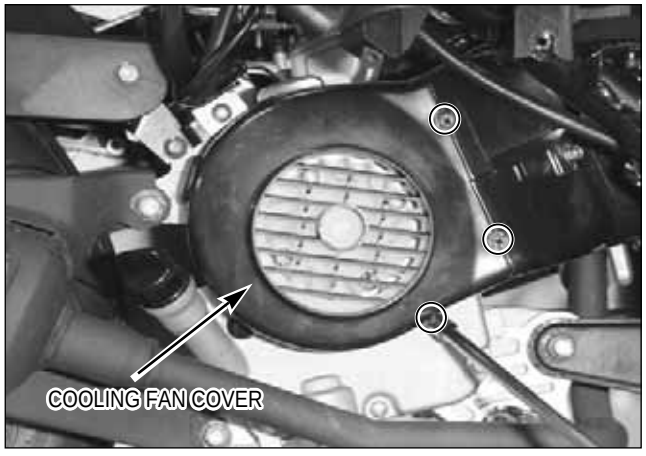


CAUTION

- It is extremely important to replace oil filter or clean the oil filter screen at the first maintenance interval 500km by loosen the tappet adjust hole cap.
- Clean the oil filter screen with fresh cleaning oil every 4,000km.
- Check the hole cap o-ring for satisfactory condition.
- If there are not in good condition, replace it with new one.
- Tighten the hole cap with specified torque.
  TORQUE : 1.5 kgf · m



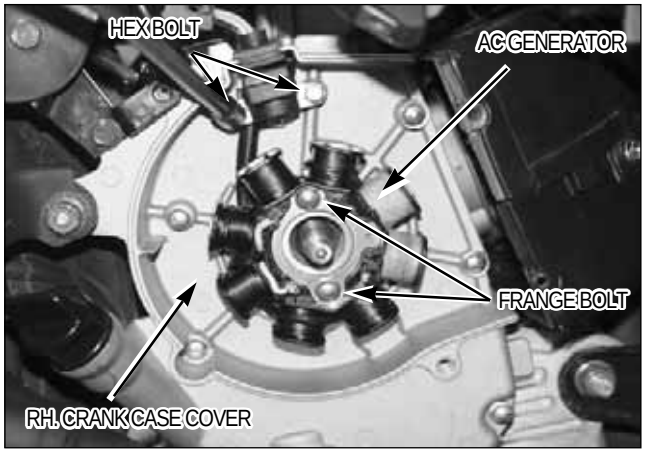
- Fill the recommended engine oil with engine oil cap.
  OIL CAPACITY : 0.85 L (After disassembly)
  0.70 L (After oil change)
- Tighten the oil level gauge.
- Recommended engine oil :
  DAELIM genuine oil.
  API service classification SL grade
  Viscosity : 10W-40
- Start the engine and let it idle for a few minutes.
- Stop the engine and check the engine oil level. If the oil level is low, add the recommended engine oil.
- Check to see if the oil is leak..



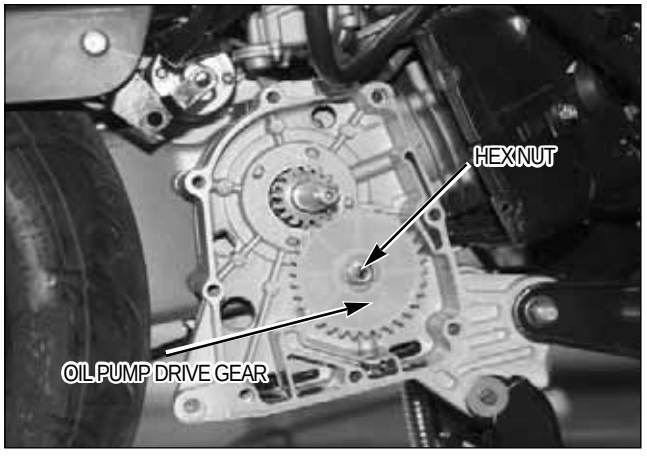
OIL PUMP

INSPECTION

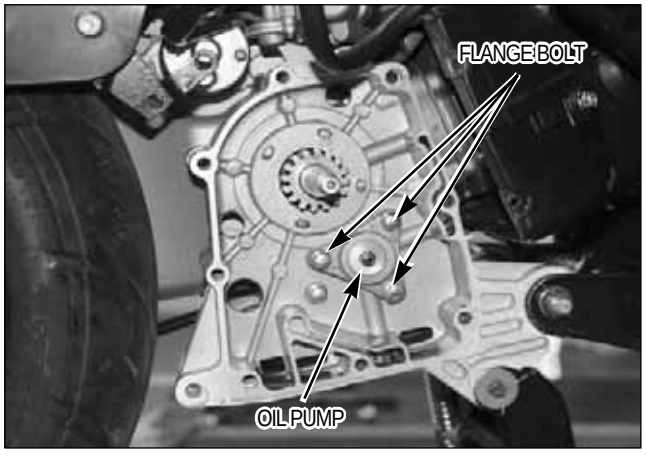
- Drain the engine oil.
- Untie 1 flange bolt and 2 tapping screws installed at cooling fan cover.



- Disassemble cooling fan.
- Disassemble AC generat.



- Disassemble RH. Crank case cover.
- Untie hex nut installed at oil pump drive gear.
- Untie oil pump drive gear.



- Untie 3 fixed flange bolts at oil pump.
- Untie oil pump.

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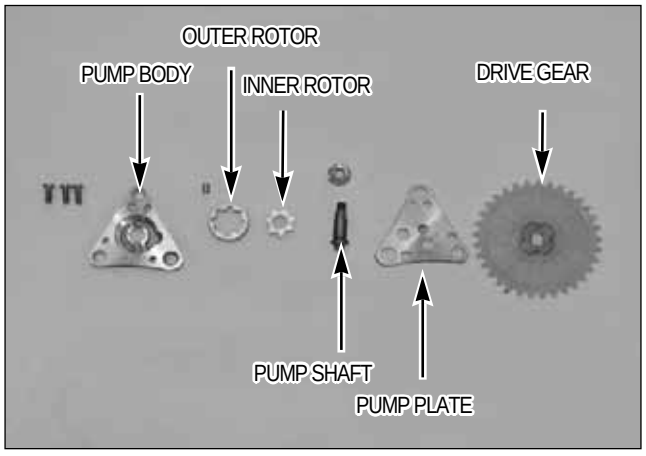
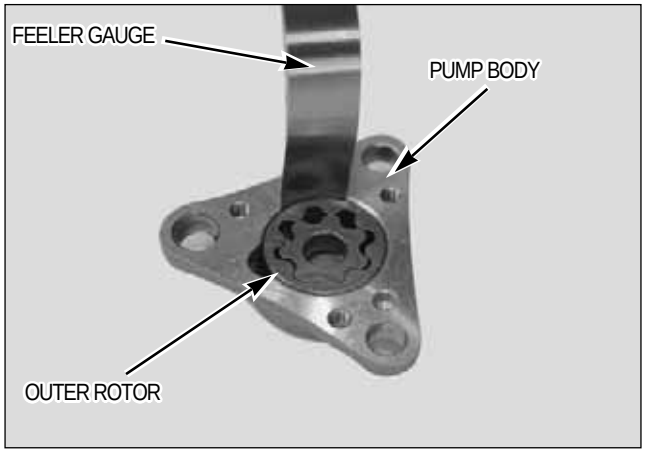


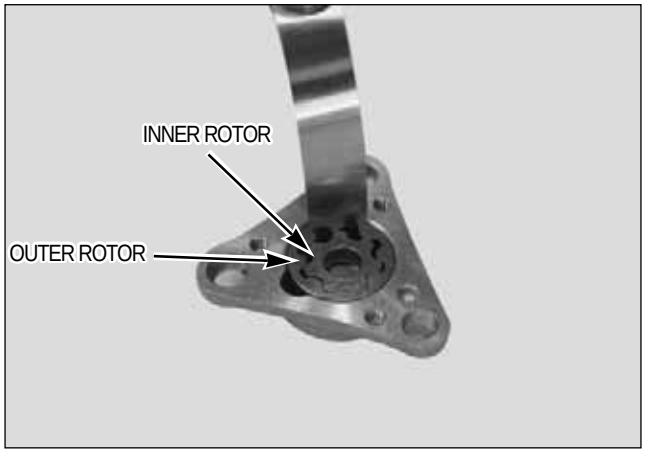
OIL PUMP DISASSEMBLY

- Loosen the screw securing the oil pump plate.
- Remove the oil pump body and oil pump plate.
- Clean the oil pump body, inner rotor, outer rotor with fresh cleaning oil.

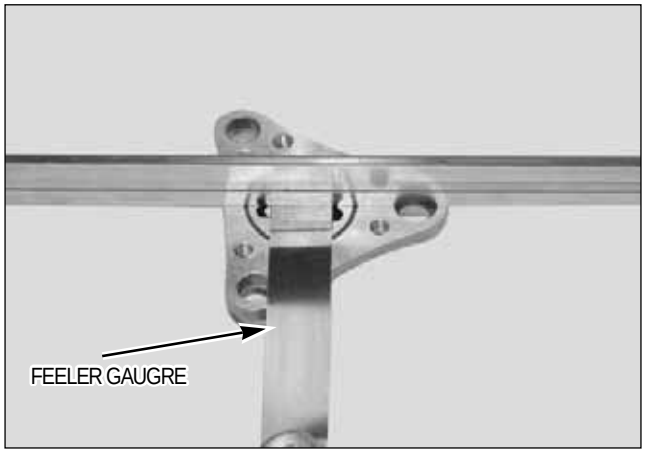


OIL PUMP INSPECTION

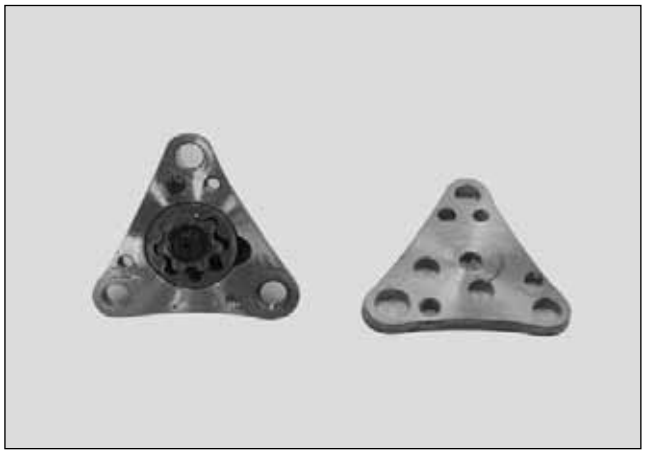
- Install the inner and outer rotors into the oil pump body exactly.
- Measure the end clearance pump body and outer rotor.
  SERVICE LIMIT : 0.2 MM
  TOOL : FEELER GAUGE



- Measure the end clearance between inner and outer rotor.
  SERVICE LIMIT : 0.18 MM

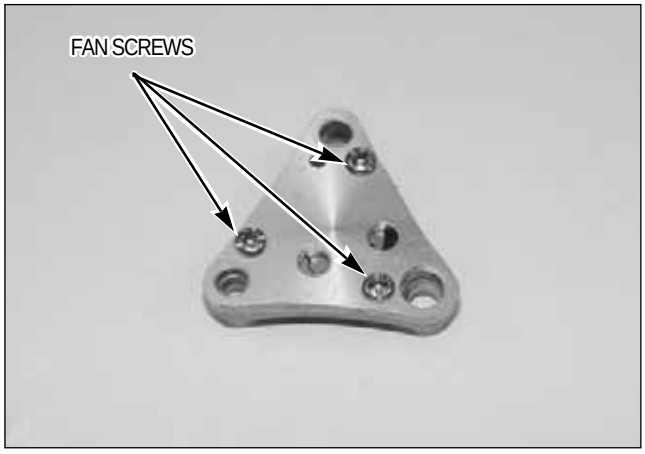


- Measure the pump side clearance and multi sides of rotor.
  SERVICE LIMIT : 0.12 MM



ASSEMBLY

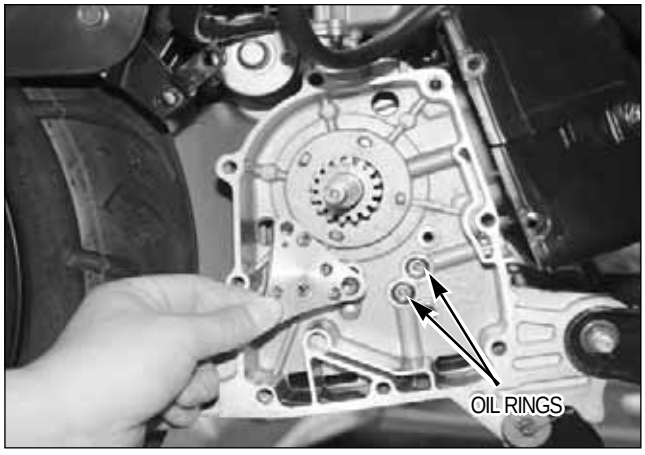
- Clean all parts with fresh cleaning oil.
- Install the inner and outer rotors into the oil pump body.



- Install the oil pump plate into the pump body.
- Tighten the fan screw.

NOTE

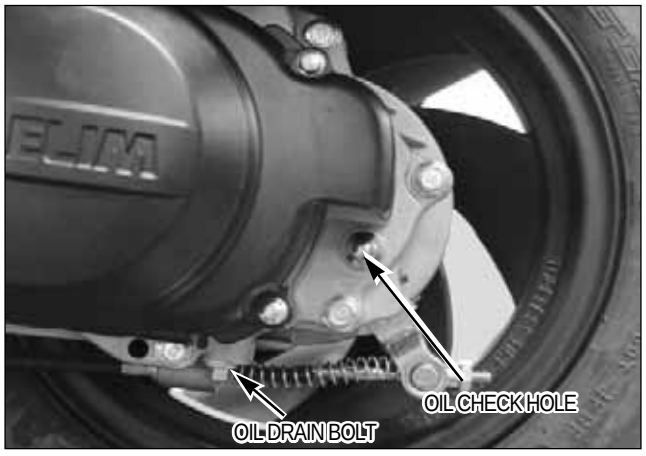
• Check the oil pump to operate smoothly by turning pump shaft.

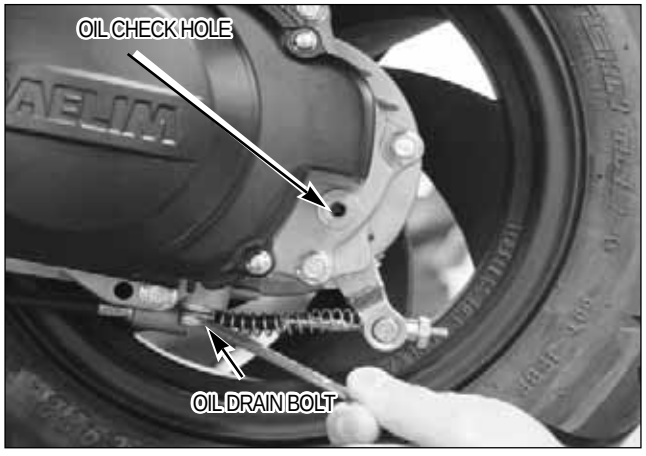


INSTALLATION

- Assemble o-ring and dowel pin.
- Assemble oil pump to RH. Crank case.

- Assemble the following parts
  - Oil pump drive gear
  - RH. Crank case cover
  - A.C. Generator
  - Cooling fan and cooling fan cover
  - Muffler





TRANSMISSION OIL

INSPECTION

- Check the connection part of case for any leak.
- Loosen the oil check bolt and check to see if the oil overflows from the oil check hole.
- If the oil amount is not enough , loosen the oil check bolt and fill the recommended transmission oil to the oil filter hole.

OIL CAPACITY : 0.12 L (After disassembly)
0.10 L (After oil change)

CAUTION

• Oil level inspection must be performed in the flat ground with the vehicle being straight by raising the main stand.

RECOMMENDED OIL : SAE 80W/90

- Tighten the oil check bolt.
  TORQUE : 0.9 kgf · m
- Start the engine and check for leak.

MEMO

5. FUEL SYSTEM

SERVICE INFORMATION · · 5-1
TROUBLESHOOTING · · · · 5-2
FUEL TANK · · · · · · · · 5-3
CARBURETOR · · · · · · · 5-3
CARBURETOR INSULATOR · 5-6
PILOT SCREW ADJUSTMENT · 5-9
FUEL COCK · · · · · · · · 5-11

SERVICE INFORMATION

GENERAL SAFETY

CAUTION

- Gasoline is extremely flammable. Avoid fire in the work place, also paying particular attention to sparks. Furthermore the evaporated(gasfied) gasoline is highly explosive. Work in a well-ventilated areas.
- Exhaust gas contains poisonous substance. Do not keep engine running for a long period of time in a closed, or poorly ventilated area.
- Do not excessively bend or twist cable. Distorted or damaged cable may lead to mechanical malfunctions.
- Pay particular attention to the position of O-ring. Replace with new ones when disassembled.
- If it is desired to store a vehicle for a period longer than 1 month, drain gasoline out of the carburetor float chamber. Gasoline left in the float chamber will be deteriorated causing the slow jet to be cloggedwith deposits, and idling may become unstable.

SPECIFICATIONS

FUEL TANK CAPACITY : 5.0 *l*
RESERVE FUEL CAPACITY : 1.5 *l*

CARBURETOR SPECIFICATIONS

ITEM	STANDARDS
TYPE/ VENTURI DIAMETER	CV TYPE(VACUUM)/Ø16
MODEL MARK	PD 19J
MAIN JET NO.	#80
PILOT SCREW REVERSE-ROLLING	2±1/2
FLOAT LEVEL	11mm
IDLING SPEED	1,700±100rpm
THROTTLE GRIP TOLLERANCE	2-6mm

TOOL

FLOAT LEVEL GAUGE

TROUBLESHOOTING

The vehicle does not start.

- No gasoline in fuel tank.
- Fuel is not coming out of carburetor.
- Too much fuel is flowing into cylinder.
- No spark emitted from spark plug.
- Air cleaner is blocked.

Idle is unstable and engine turns off after starting.

- Idle is adjusted improperly.
- Air/fuel mixture is either too lean or rich.
- Air cleaner is blocked.
- Suction system is experiencing secondary intake of air.
- Fuel system is blocked.
- Auto bystarter is damaged.
- Ignition system is damaged.
- Using low quality gasoline.
- Air screw is adjusted improperly.
- Carburetor is blocked.
- Compression pressure is low.

Miss-fire at speeding.

- Ignition system is damaged.
- Mixture is too lean.

Back firing

- Ignition system is damaged or works improperly.
- Mixture is too lean.

Insufficient power and high fuel consumption.

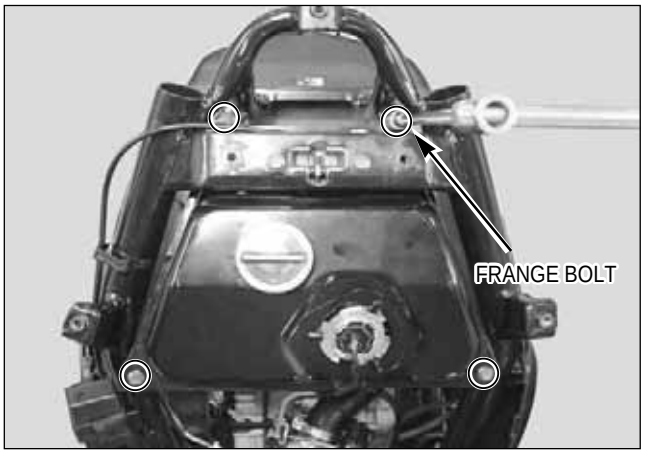
- Air cleaner is blocked.
- Ignition system is damaged.
- Mixture is too rich.

Air/Fuel mixture is extremely lean

- Jets of carburetor are blocked.
- Bad ventilation of air in tank cap.
- Fuel strainer screen is blocked.
- Fuel tube is bent, creased or blocked.
- Float valve is working badly.
- Oil level is low.
- Suction system is receiving secondary suction of air.
- Output capacity of fuel pump is insufficient..

Air/Fuel mixture is extremely rich.

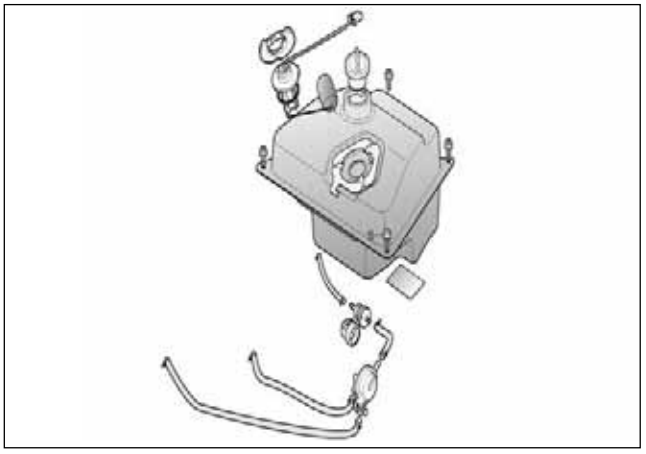
- Float valve is damaged.
- Air jets are blocked.
- Oil level is too high.
- Auto bystarter is damaged.
- Air cleaner is blocked.



FUEL TANK

REMOVAL

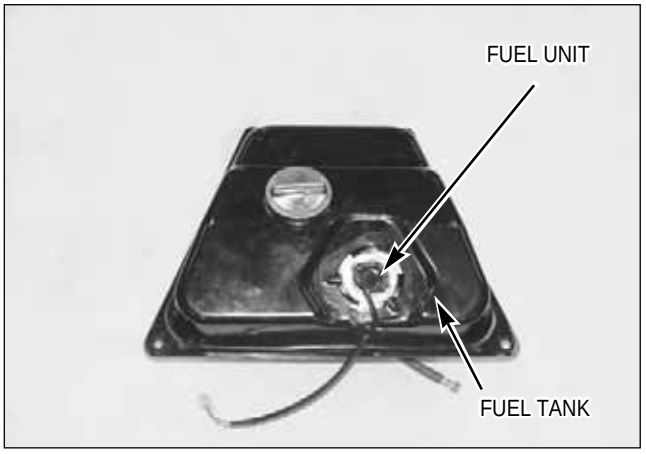
- Remove luggage box.
- Untie 4 flange bolts installed at fuel tank.



- Remove the fuel unit wire coupler.
- Remove the tube located fuel tank and fuel filter.
- Remove the fuel tank joint pipe tube.

CAUTION

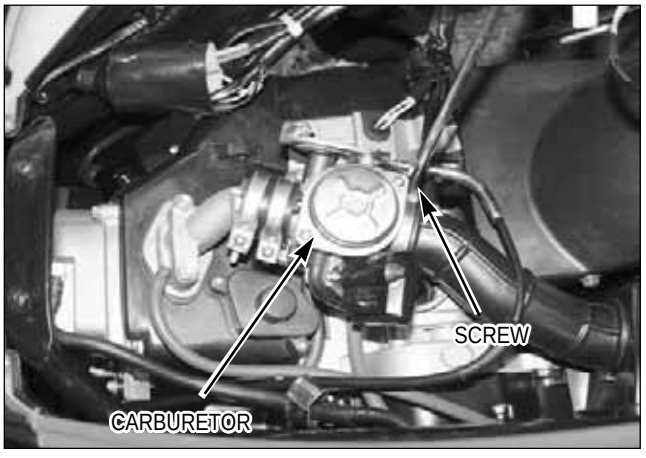
• Gasoline is extremely flammable. Avoid fire during work and pay particular attention to electric sparks.Furthermore, the evaporated(vaporized) gasoline is highly explosive. Work in a well-ventilated areas.



NOTE

• After removing the fuel tank, be sure to close the fuel tank cap. (Gasoline is extremely flammable.)

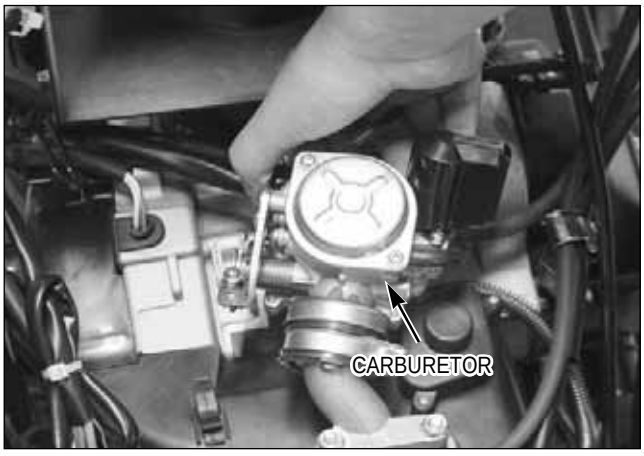
- Remove fuel tank.
- Install in the reverse order of removal.



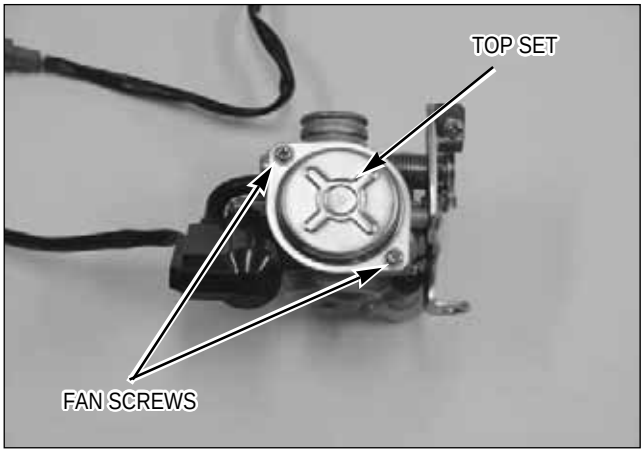
CARBURETOR

REMOVAL

- Disassmeble luggage box.
- Untie screws installed at air cleaner.
- By untieing throttle cable lock nut, disconnect throttle cable from carburetor.
- Disconnect fuel tube from carburetor.
- Disconnect auto by starter wires.

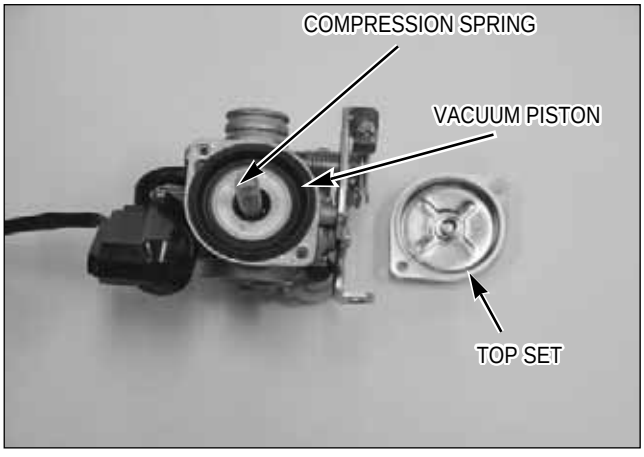


- Untie screws installed at insulator.
- Disconnect carburetor.



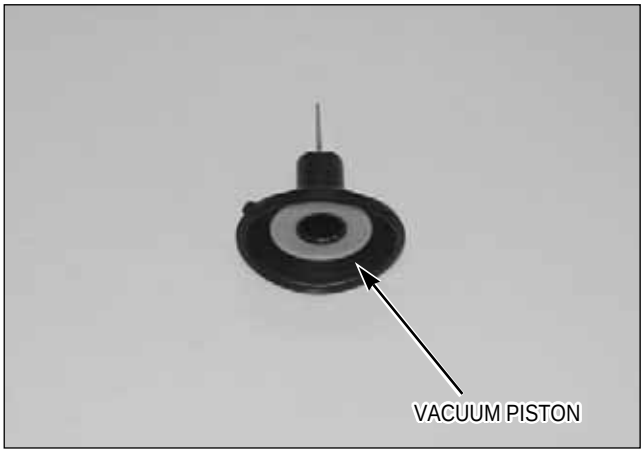
REMOVAL

- Loosen the drain screw and drain the fuel.
- Remove the drain tube and air band hose.
- Loosen the 2 diaphragm cover setting screws.

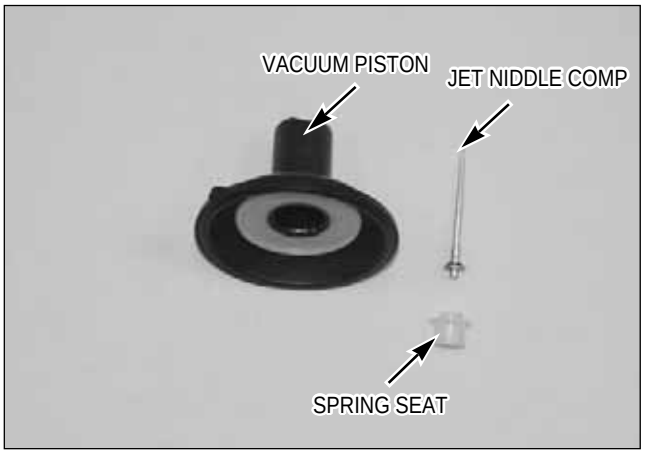


- Disconnect top set cover.

.



- Disconnect jet needle, spring seat from vacuum piston.

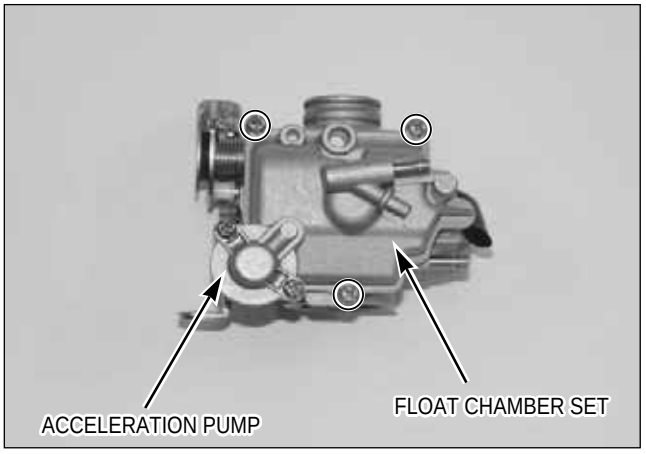


INSPECTION

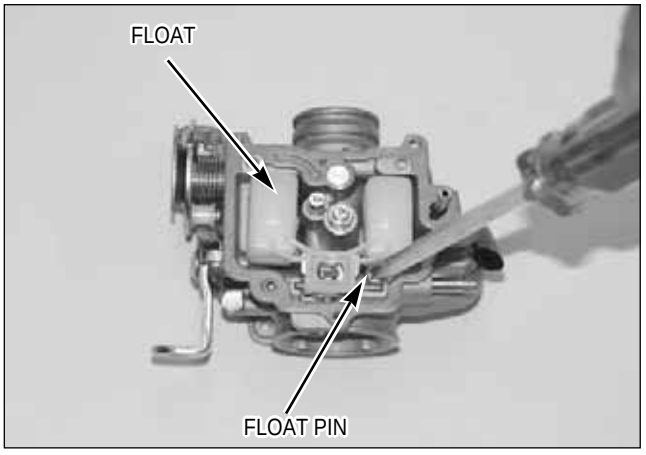
- Check the jet needle for wear and replace if necessary.
- Check the vacuum piston for damage and replace if necessary.
- Check the diaphragm for damage, pin holes, bends and replace if necessary.

NOTE

• Check the diaphragm adequately for crack in the wrinkled and bent area.



- Loosen 3 screws from float chamber set.

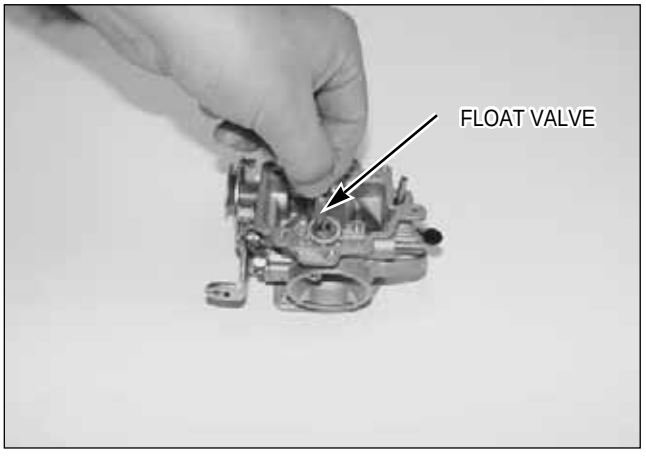


- Loosen screw at float pin.
- Disassemble float pin, float, float valve.

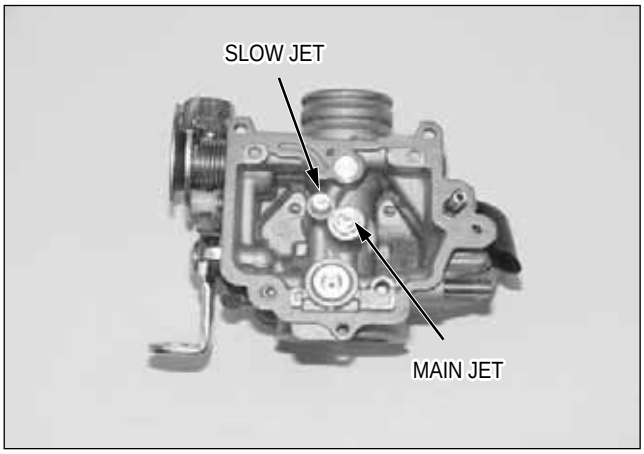
CAUTION

• Do not damage the jets because it made of soft material and also, do not use the wire when cleaning the air and fuel passage.

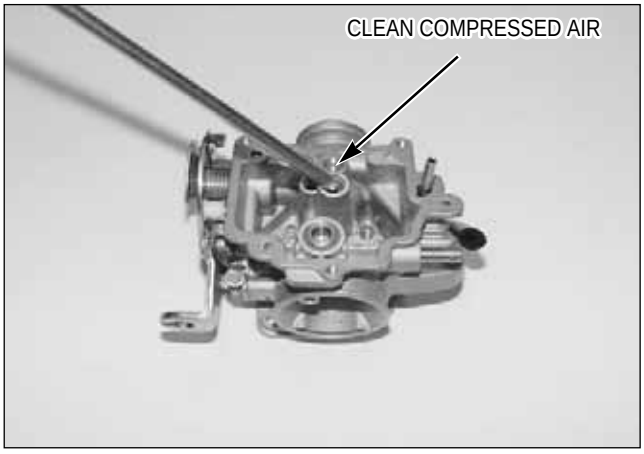
• Otherwise, it will damage to the carburetor body, eventually it will be effect the engine. Namely it is cause of bad condition of engine.



- Check the float and valve seat for scores, scratches, clogging and damage replace if necessary.
- Check the float valve operation.



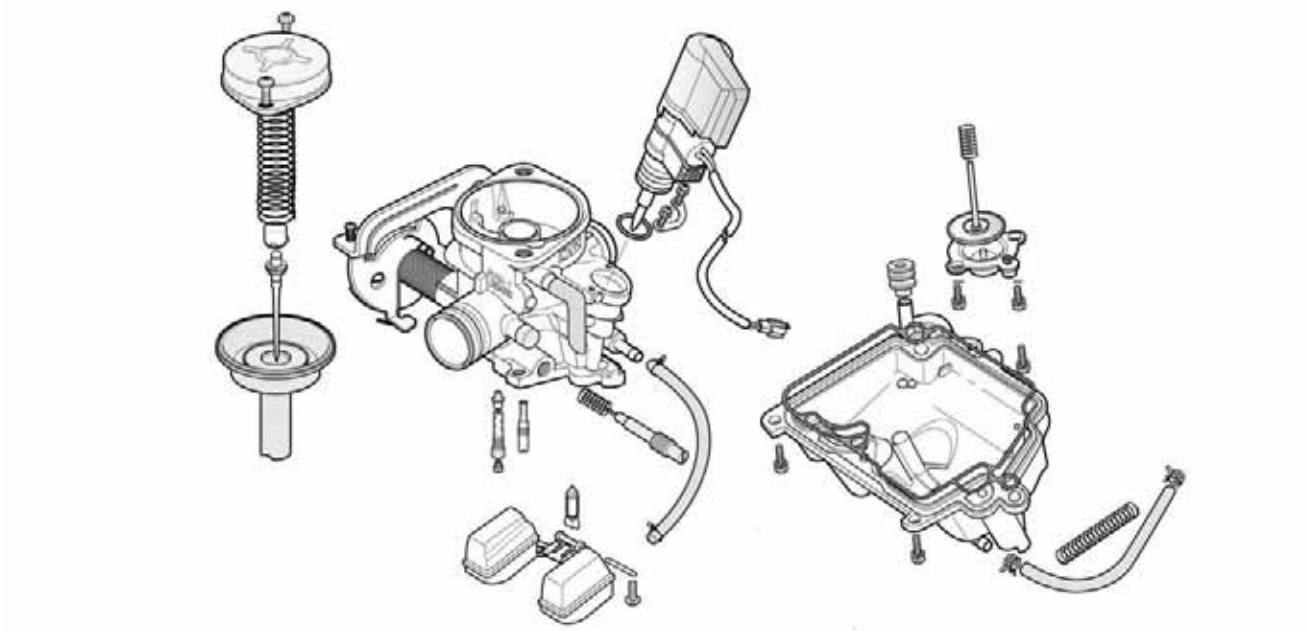
- Remove the main jet, main jet holder, needle jet, slow jet, pilot screw.

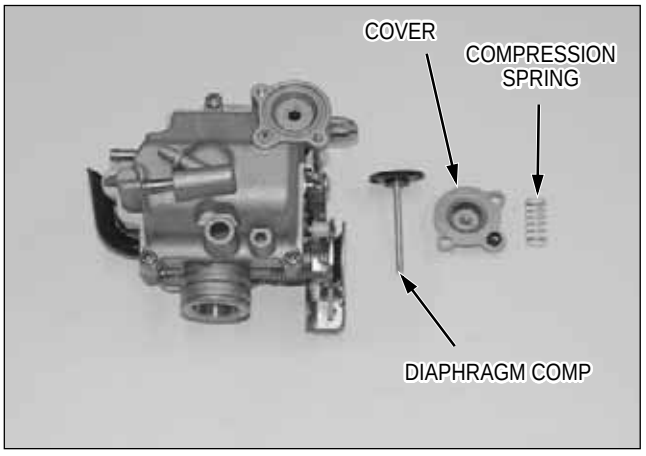


- Clean the all jet and hole of carburetor body with blow the compressed air.

CAUTION

- Turn in the pilot jet screw and record the number of turns it takes before it seats lightly.
- Do not force pilot screw against its seat. The seat will be damaged.

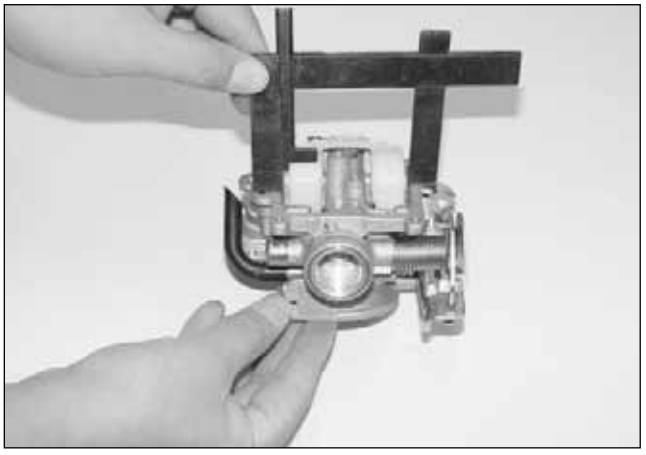




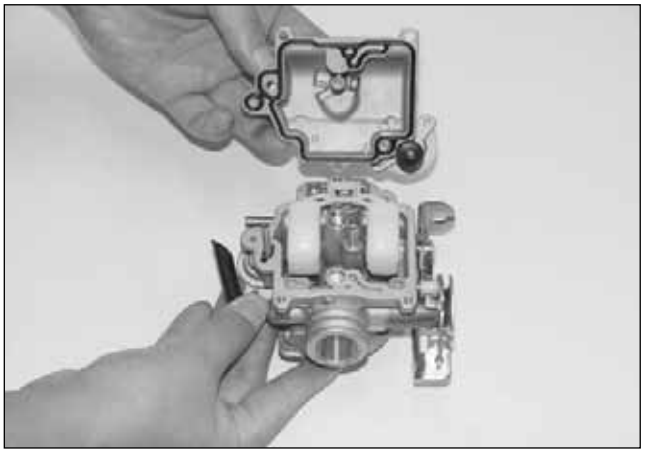
- Disassemble accelerating pump.
- Loosen 2 screws, disconnect diaphragm, compression spring.
- Check whether there are pin role, twist, damage of diaphragm.
- Clean by compressed air fuel channel of diaphragm cover.

ASSEMBLY

- Assemble needle jet, needle jet holder, main jet, slow jet..
- Assemble O-ring washer of pilot screw, spring screw.
- Assemble based on revultion point remembered at the time of disassembling pilot screw.



- Measure float level.
  FLOAT LEVEL : 11MM
  TOOL : FLOAT LEVEL GAUGE



CAUTION

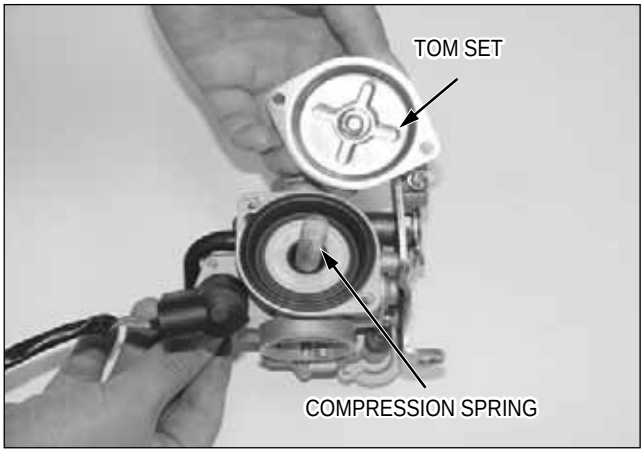
• Replace with new float chamber body o-ring.

- Assemble float valve, float, float pin.
- Assemble float body ass'y and 3 fan screws, bracket.

● Assemble accelerating pump.

CAUTION

• Assemble jet neeld fitting at assembled hole.



● Assemble vacuum piston, jet needle, spring seat.
● Assemble compression spring.
● Assemble tom set and install 2 screws.

CAUTION

• Be careful for vaccum piston not to pinch to tom set.

• By keeping spring straight and reducing its length, assemble cover.

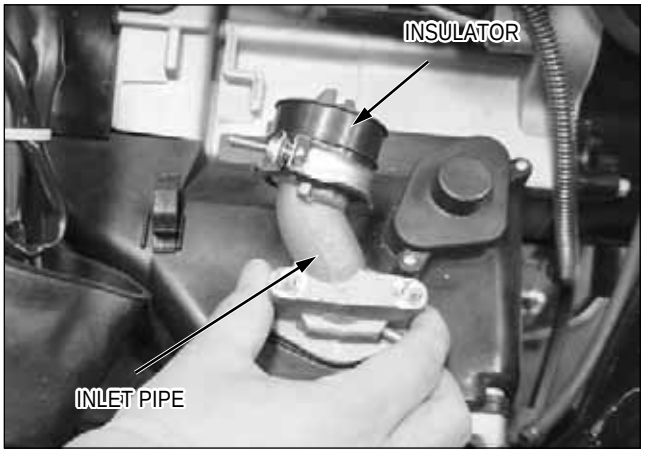
INSTALL

● Install carburetor to carburetor insulator.
● Assemble carburetor fixed type insulator band screw.
● Assemble fuel tube to carburetor.
● Assemble auto bystarter wires.

● Assemble throttle cable to carburetor.
● Assemble air cleaner.
● Assemble luggage box.
● Assemble center cover.

CAUTION

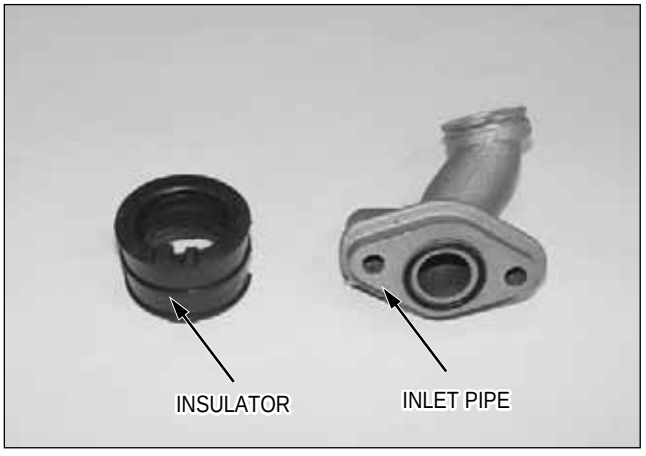
• Check throttle grip tolerance after assembling carburetor.



CARBURETOR INSULATOR

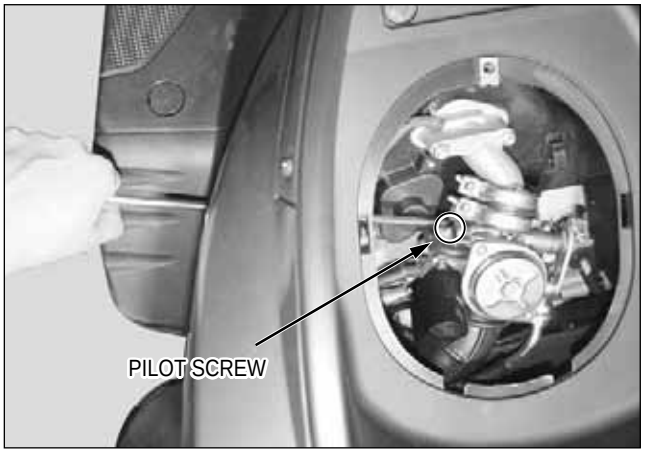
DIASSEMBLY

- Disassemble luggage.
- Disassemble carburetor.
- Disassemble floating pressure fuel pump.
- Disassemble 2 fixed nuts of inlet pipe.
- Disassemble carburetor insulator.
- Disassemble fixed band of carburetor insulator.



INSPECTION

- Check abrasion or damage of carburetor insulator.
- Check abrasion or damage of inlet pipe o-riing.
- Install in the reverse order of removal.



PILOT SCREW ADJUSTMENT

USING THE EMISSION ANALYZER(CO,HC)

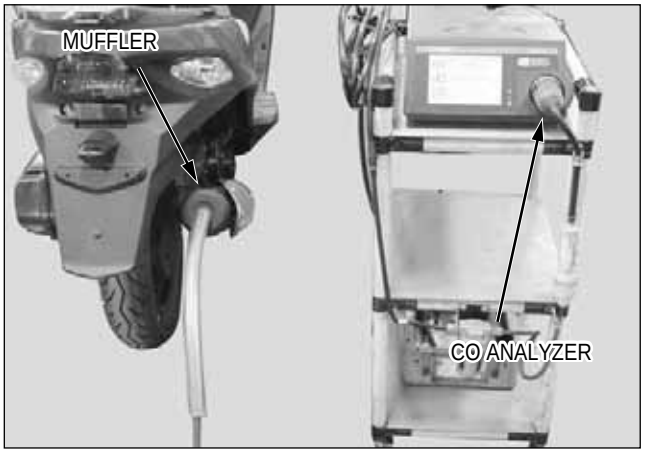
- Open the seat and remove the carburetor maintenance cover.

① Turn the pilot screw clockwise until it seats lightly, then back it out to the specification given.(2±1/2)

② up the engine to operating temperature(60°C).

③ Adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1700 °±100 RPM

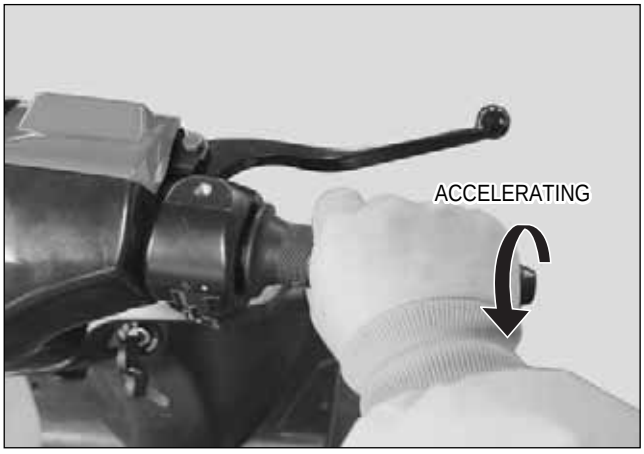


NOTE

- Before adjustment the pilot screw, check the following items.
- Fuel system electrical system for troubling.
- Do not force the pilot screw against its seat. The seat will be damaged.
- The spark plug for cleaning and gap adjusting.
- Valve clearance for adjusting.
- Emission analyzer for correction.
- Exhaust gas contains poisonous substance, so do not
- adjusting in a closed or poorly ventilated area.

④ Extend the hose(60mm) at the tail pipe and insert the probe of the emission analyzer to the tail pipe and adjust the pilot screw with a 1/8, the Co to became 3~4%.

⑤ Adjust by the throttle stop screw, repeat step ④ and ⑤ until according the idle rpm (1,700rpm) and the Co(3~4 %).

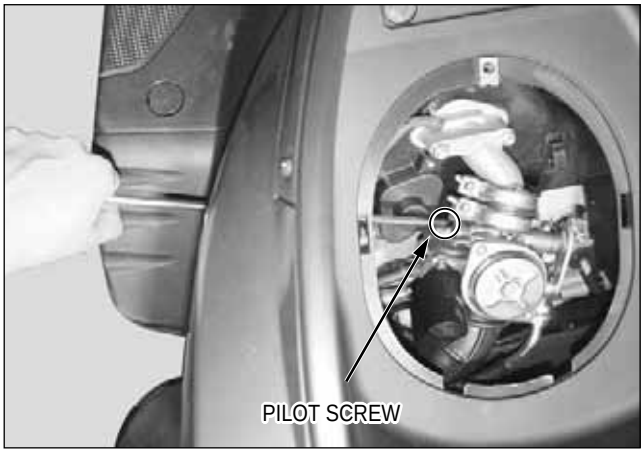


⑥ Snap lightly in idling and check to see if the rotation is smoothly and to return is normal.

● Install the carburetor maintenance cover.

NOTE

- If the engine cannot be adjusted by turning the pilot screw within a ¼ turn, check for other engine problems.



EMISSION ANALYZER IS NOT EXIST

① Turn the pilot screw clockwise until its seats lightly, then back it out to the specification given. (1 1/2)

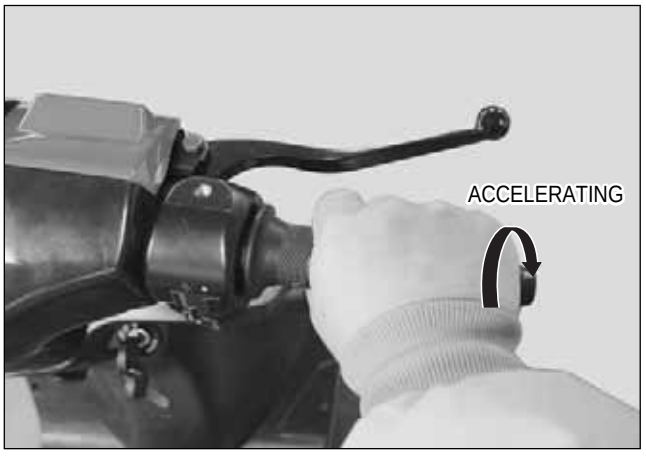
② Warm up the engine until the engine oil temperature reaches to approximately 60°C.

③ Adjust the idle speed with the throttle screw.

IDLE SPEED: 1700 °±100 RPM

NOTE

- Before adjustment the pilot screw, check the following items.
- Fuel system electrical system for troubling.
- Do not force the pilot screw against its seat. The seat will be damaged.
- The spark plug for cleaning and gap adjusting.
- Valve clearance for adjusting.



④ When idling, check to see if the rotation is smoothly and to return is normal.

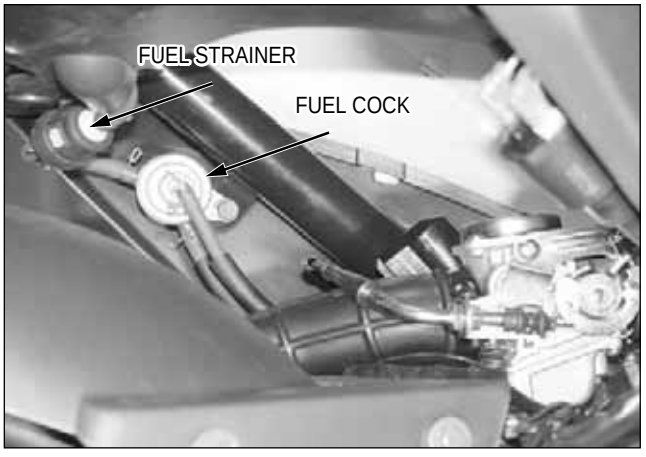
⑤ Turn the throttle stop screw until the 1000 rpm, and check the stopping of engine.
If the engine is stop, adjust the pilot screw with a 1/8 and repeat step ④ and ⑤.
(Check by snapping slightly and check whether RPM goes down naturally.)

NOTE

- If the engine cannot be adjusted by turning the pilot screw within a ¼ turn, check for other engine problems.

⑥ After the final test of the starting and driving, readjust if necessary. Assemble the carburetor maintenance cover of luggage box.

- Assemble luggage box to carburetor maintenance cover.

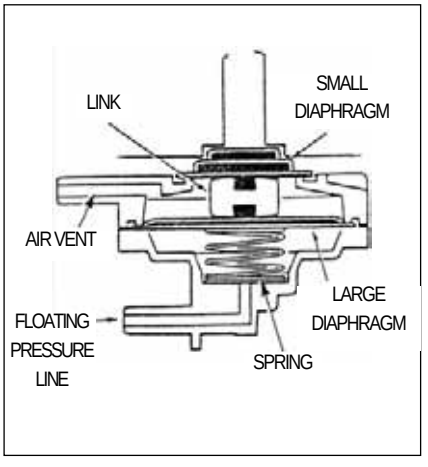


FUEL COCK

- Disassemble luggage box.
- Disconnect fuel tube A, B connected to fuel cock.
- Disassemble fuel cock.
- Install in the reverse order of removal.

INSPECTION

- Be sure to remove the diaphragms from the fuel auto valve before using compressed air the blow out of air passages. Compressed air will damage the diaphragms or may forced them off the aluminum.



NOTE

- Place a clean container under the fuel tube.

- Do repair after emptying gasoline in fuel tank.
- Connect the fuel auto valve vacuum tube to the vacuum pump and apply vacuum. Be sure that the fuel flows out smoothly.
- If the vacuum does not remain steady, it indicates the diaphragm is incorrectly installed or damaged.
- If the vacuum remains steady, but the fuel flow is not smooth, it indicates a clogged filter or incorrectly installed diaphragm.
- If the fuel flows without the vacuum applied, the diaphragm is incorrectly installed.

MEMO

6. ENGINE REMOVAL/INSPECTION

SERVICE INFORMATION · · · · · 6-1
ENGINE REMOVAL/ASSEMBLY · · 6-2

SERVICE INFORMATION

GENERAL SAFETY

NOTE

- Use a jack to remove or install the engine. Support the motorcycle with a jack firmly, taking precautions not to damage the frame, engine, cable or harness.
- Attach tape to the frame to protect it during the engine removal or installation.

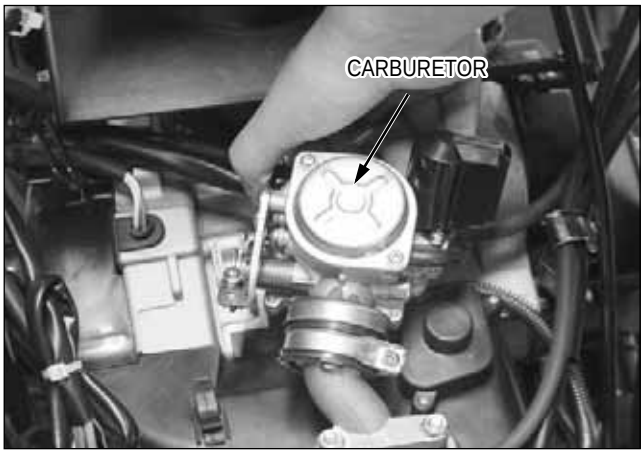
● The following works can be carried out without removing the engine from the vehicle body.

-TRANSMISSION (⇨SECTION 11)
-A.C. GENERATOR (⇨SECTION 8)
-KICK STARTER/ CONTINUOUSLY VARIABLE TRANSMISSION (⇨SECTION 7)
-STATOR MOTOR (⇨SECTION 16)
-CARBURETOR (⇨SECTION 5)
-EX. MUFFLER (⇨SECTION 3)

● Items to be worked after removing engine.
-CYLINDER HEAD, CYLINDER, CRANK SHAFT, CRANK SHAFT BEARING
● Engine oil capacity : 0.85L(when disassembling)

TORQUE VALUES

ENGINE HANGER BOLT : 4.5㎏f · m

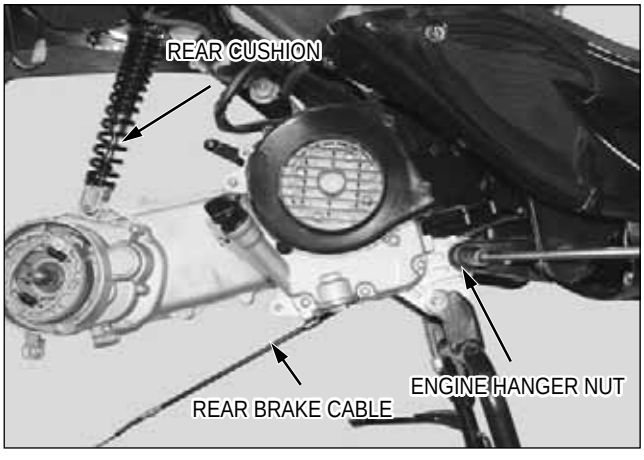


ENGINE REMOVAL / ASSEMBLY

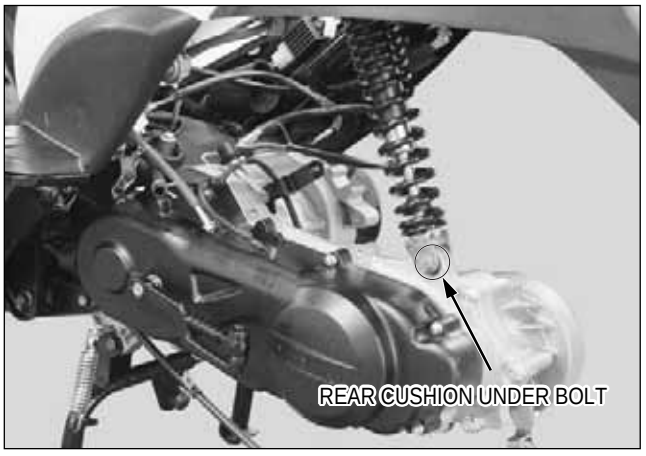
- Release the seat lock by turning the main key and open the seat.
- Remove the following parts.
  - Luggage box.
  - Air cleaner.
  - Carburetor.
- Disconnect the A.C generator coupler and connector wiring connected to the A.C generator, disconnect the starter motor wiring cable.

- Remove spark plug cap cord from the engine.
- Remove the bleeder tube from the cylinder head cover.
- Remove the EX. muffler.

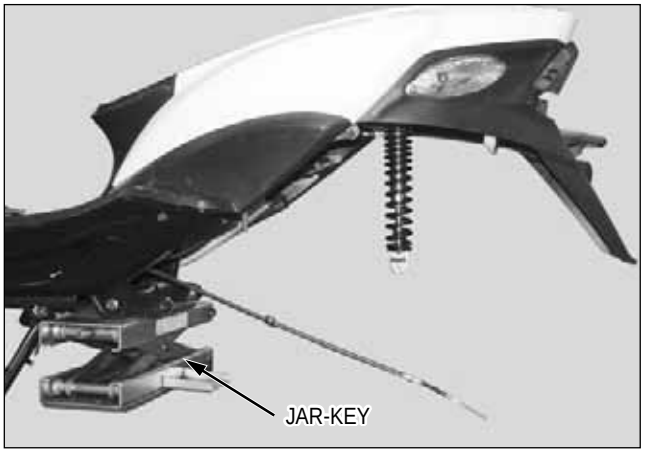
- Loosen the lock nut securing rear wheel and remove the rear wheel.



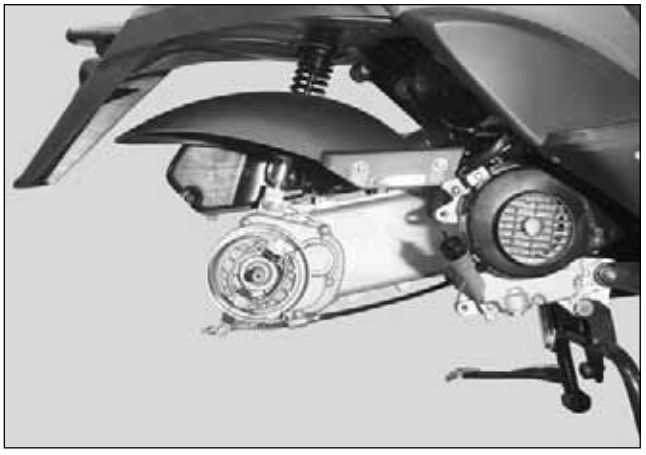
- Loosen the rear brake adjuster nut, and remove the brake arm joint B, and remove the rear brake cable.
- Remove the engine hanger nut.



- Loosen rear cushion under bolt.



- Fix the jar-key for the motorcycles to under the vehicle.
- Loosen the flange bolt securing the engine hanger and remove the engine from the frame.



ASSEMBLY

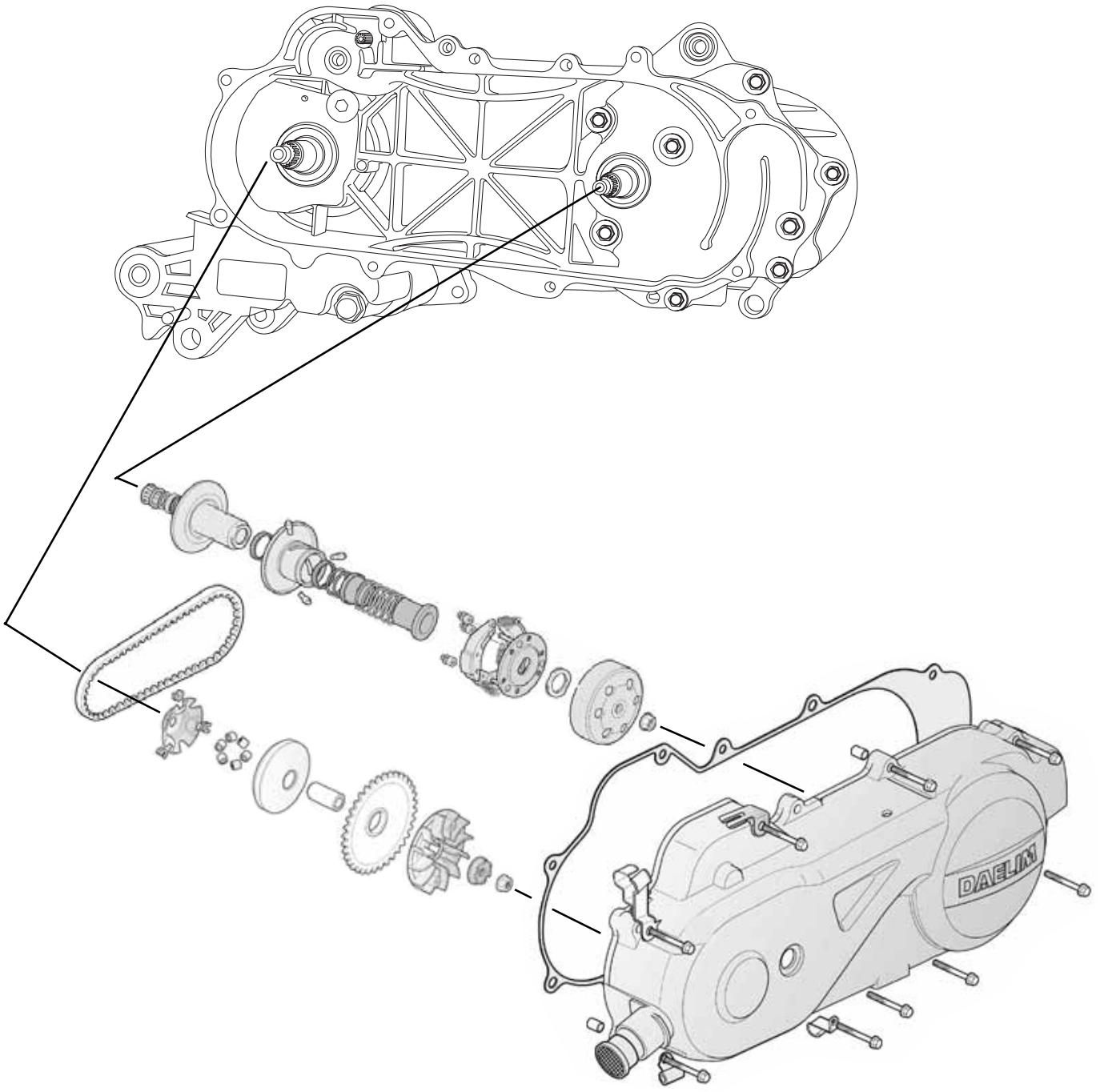
- Install in the reverse order of removal.

NOTE

- Take precaution not to damage wiring and cable.
- Take precaution not to damage the threaded part of bolts.
- Arrange the cable, tubes and wiring in the right positions

TORQUE : ENGINE HANGER NUT : 4.5 kgf · m

- Check the following after the engine is installed.
  - Engine oil leakage.
  - Inspection of throttle cable operation.


DAELIM

7. BELT TYPE CONTINUOUSLY VARIABLE TRANSMISSION / KICK STARTER

SERVICE INFORMATION · · · 7-1
SERVICE STANDARD · · · · 7-1
TROUBLESHOOTING · · · · 7-1
LH. CRANK CASE COVER REMOVAL · 7-2
KICK STARTER · · · · · · 7-2
DRIVE BELT · · · · · · · · 7-4
DRIVEN PULLEY ASS'Y · · · · 7-6
MOVABLE DRIVE FACE · · · 7-11

SERVICE INFORMATION

GENERAL SAFETY

- Do not allow oil to contact the drive belt or the pulley face. The transmission rate of driving force is reduced due to oil contact.
- Do not operate starter motor while the LH. crank case front cover is removed.

NOTE

· Take precautions not ot apply the grease oil to the movable drive face or weight roller.

SPECIFICATIONS

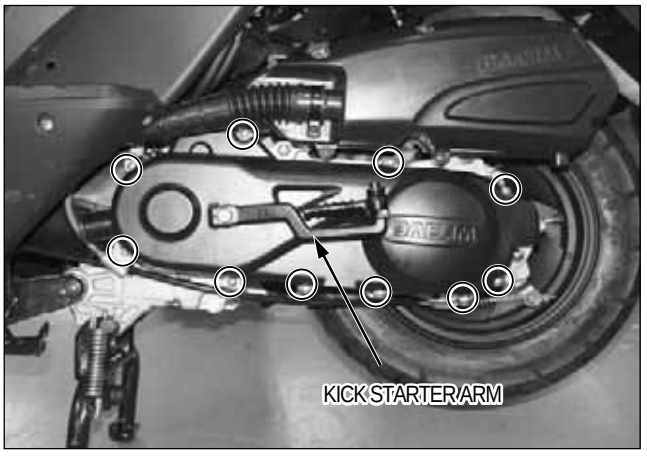
ITEM	STANDARD	SERVICE LIMIT
MOVABLE DRIVE FACE BUSHING INNER DIAMETER	20.000~20.021mm	20.10mm
DRIVE FACE BOSS OUTER DIAMETER	19.959~19.980mm	19.91mm
DRIVE BELT WIDTH	17.5mm	16.5mm
WEIGHT ROLLER OUTER DIAMETER	15.920~16.080mm	15.40mm
CLUTCH OUTER AND INNER DIAMETER	107.000~107.087mm	107.50mm

TROUBLESHOOTING

Engine starts but motorcycle does not work.
- Drive belt worn.
- Ramp plate damaged.
- Clutch shoe worn or damaged.
- Movable driven face spring cut.

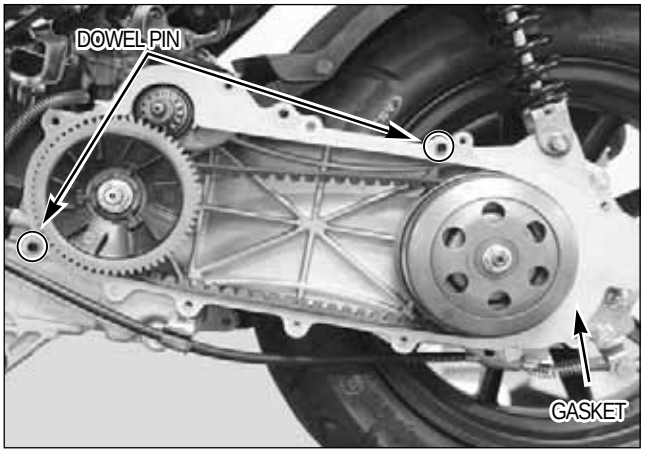
Engine stops, or the vehicle runs suddenly, after starting.
- Clutch shoe spring cut.

Vehicle unable to run at the maximum speed, or lack of output
- Drive belt worn.
- Defective movable driven face spring.
- Weight roller worn.
- Pulley face contaminated.

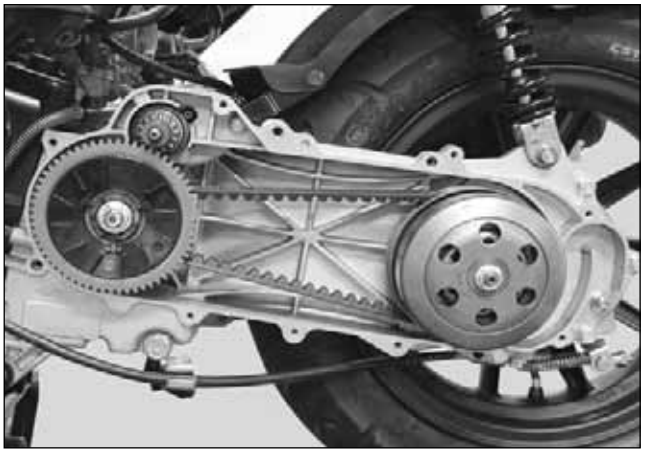


LH. CRANK CASE COVER REMOVAL

- Loosen 10 flange bolts assemble at LH. Side cover.



- Disassemble LH. Side cover.
- Disassemble gasket and dowel pin.

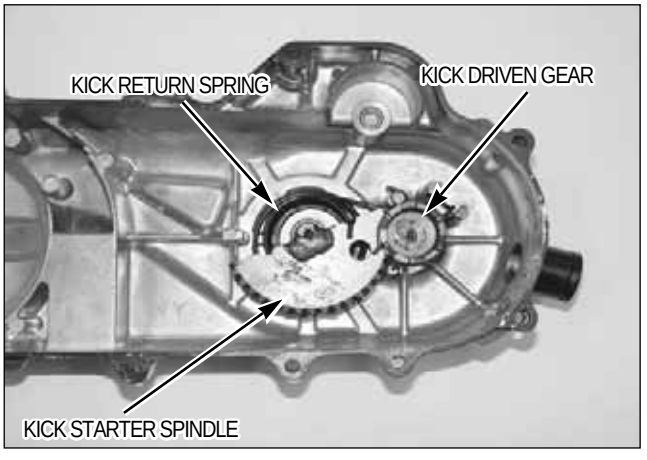


- Inspect LH. crank case cover.
- Install the new gasket and dowel pin after removing the gasket of crankcase surface.
- Install in the reverse order of removal.

.

NOTE

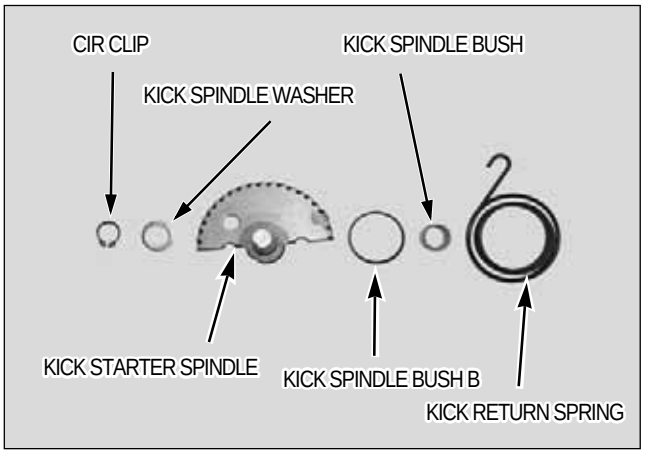
- When not knowing the length of bolt, arrange assembled positions regularly before assembling it, then assemble it.
- When assembling bolts, assemble them diagonally based on standard specification assembly torques.



KICK STARTER

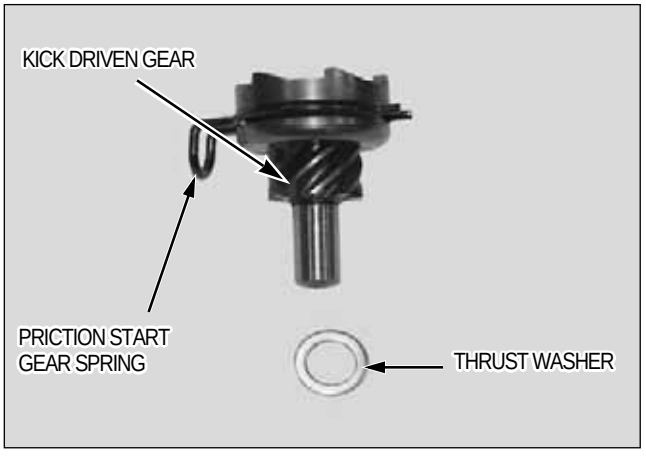
DISASSEMBLE

- Disassemble LH. Side cover.
- Disassemble fixed flange bolt of kick starter arm.
- Disassemble kick starter arm.
- Disassemble external circlip 14mm.
- Disassemble kick starter spindle washer.
- Disassemble kick starter spindle.
- Disassemble kick starter spindle spring.
- Disassemble kick starter spindle bush.

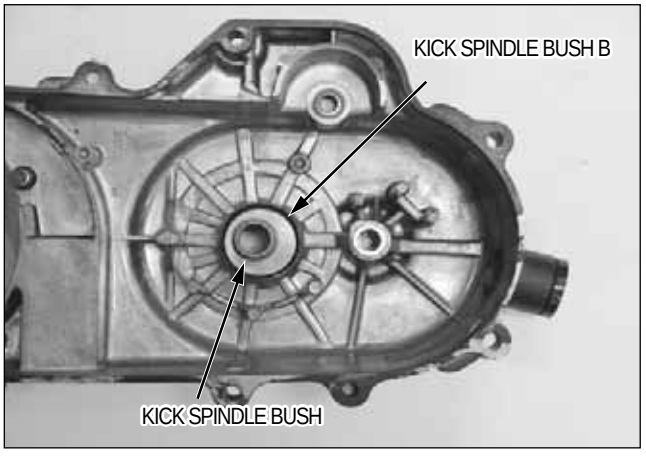


CHECK

- Check whether kick starter spindle worn, damage and gears worn, damage.
- Check whether return spring defect or damage.
- Check whether kick starter spindle bushing worn or damage.

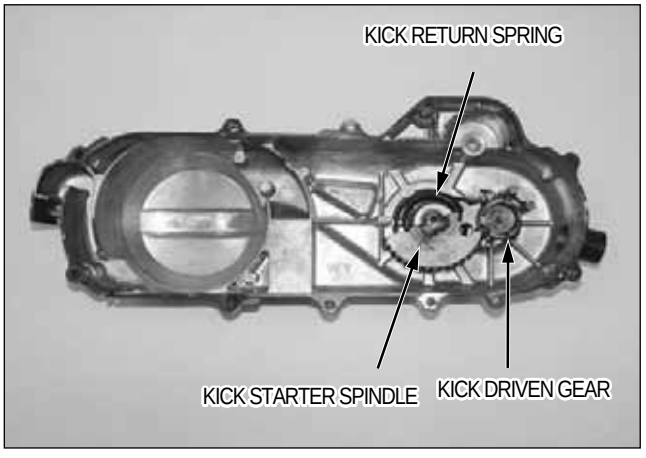


- Check kick driven gear worn, damage.
- Check friction spring defect, damage.



ASSEMBLY

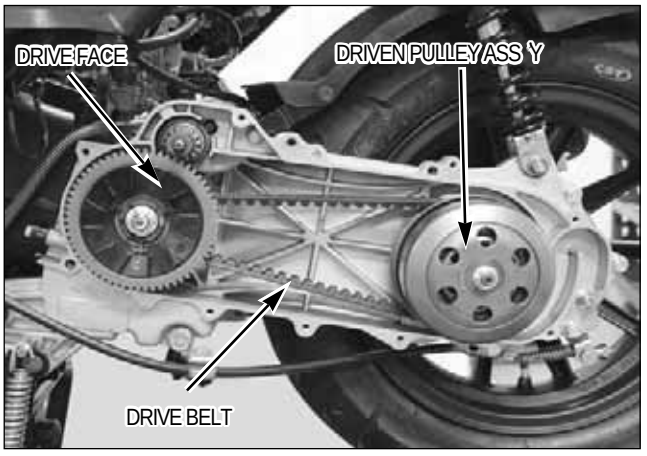
- Assemble kick spindle bush to LH. Side cover.
- Assemble kick spindle bush B to LH. Side cover.
- Assemble kick spindle spring to LH. Side cover.
- Assemble kick spindle to LH .Side cover.
- Assemble kick starter spindle washer.
- Assemble cir clip 14mm to LH. Side cover.
- Assemble kick starter arm.
- Assemble thrust washer.



- Turn kick starter spindle by kick starter arm, then assemble gear on condition of pulling '嶺' of LH. Side cover.

CAUTION

- Assemble correctly kick starter spindle to the home by fixing using hand.
- Apply grease into gear side and assemble home of kick driven gear.
- Check whether kick driven gear and kick starter spindle work well after assembly.



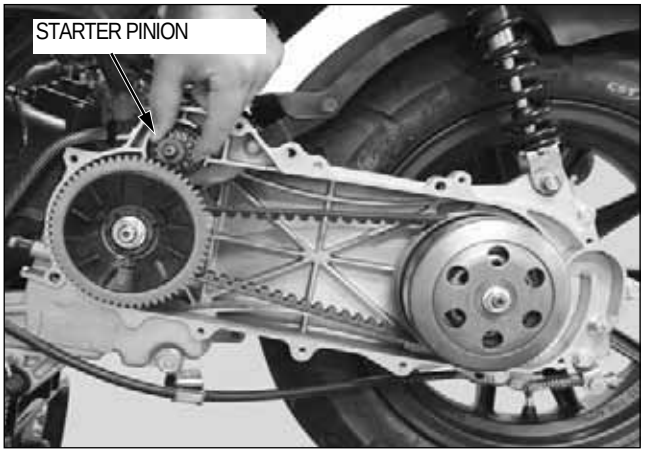
DRIVE BELT

REMOVAL

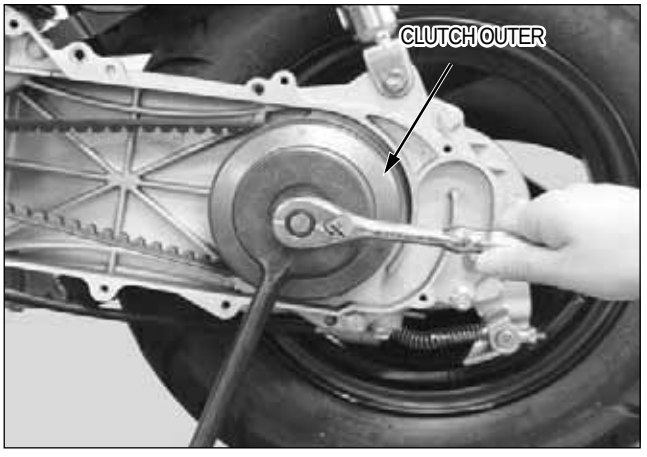
- Disassemble LH. Side cover. (⇨7-2)
- Disassemble 2 dowel pins and gasket.

CAUTION

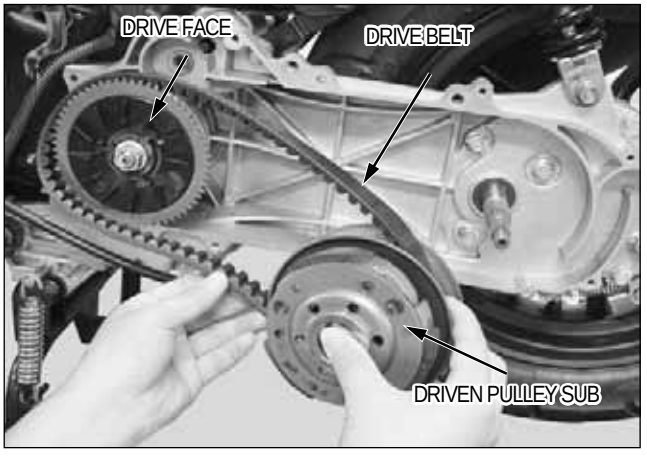
· Be careful for missing of dowel pin. When disassembling gasket, be careful its torn.



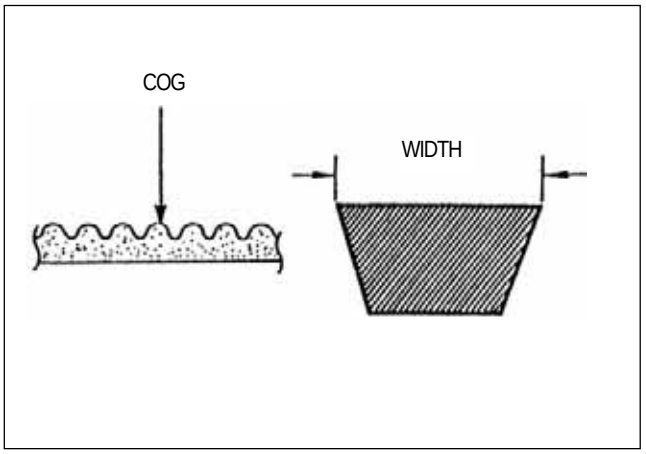
- Diassemble start pinion ass'y in order to do easy repair.



- Install special tool(universal holder) to clutcu outer, Then disassmble 10 mm nut
- Disassemble clutch outer.



- On condition that drive belt is assembled at driven pulley sub, extract to the outside of drive face.
- Disassemble belt from driven pulley sub.



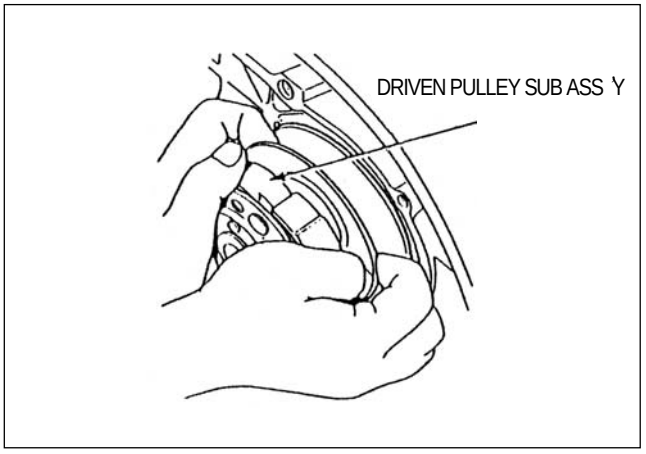
INSPECTION

- Check the drive belt for cracks, cog seperation and wear ; Replace as necessary.
- Measure the width of the drive belt → replace the belt if the service limit is exceeded.

SERVICE LIMIT : 16.5mm

NOTE

- Use only a genuine DAELIM replacement drive belt.
- Do not get oil or greasde on the drive belt or pulley side.
- Clean off any grease or oil before reinstalling.

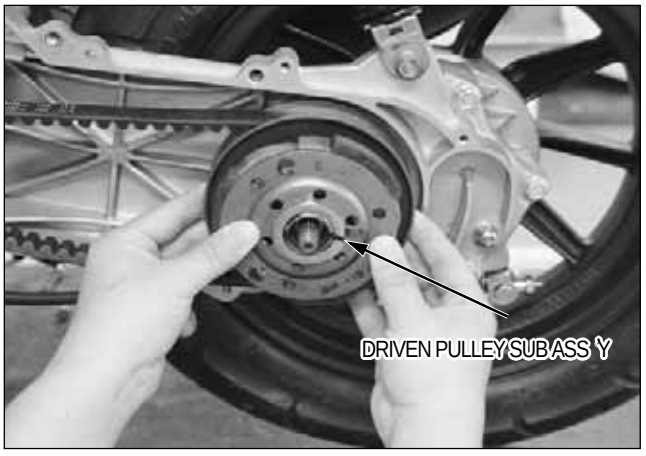


INSTALLATION

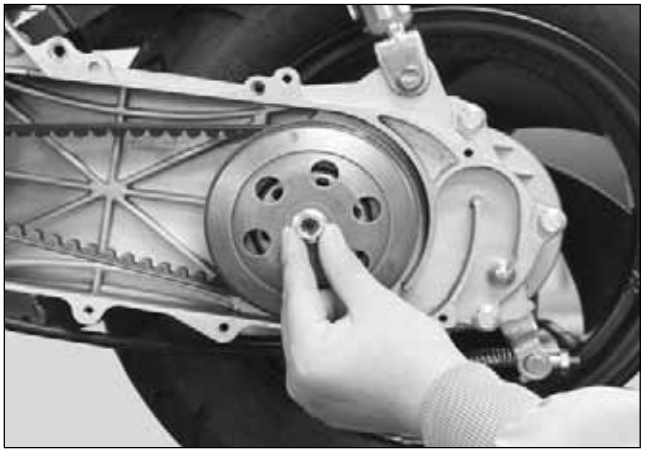
- Like left pucture, turn the pulley clockwise and spread the faces apart while installing the drive belt.

NOTE

- Hold the pulley faces apart preventing them from closing.

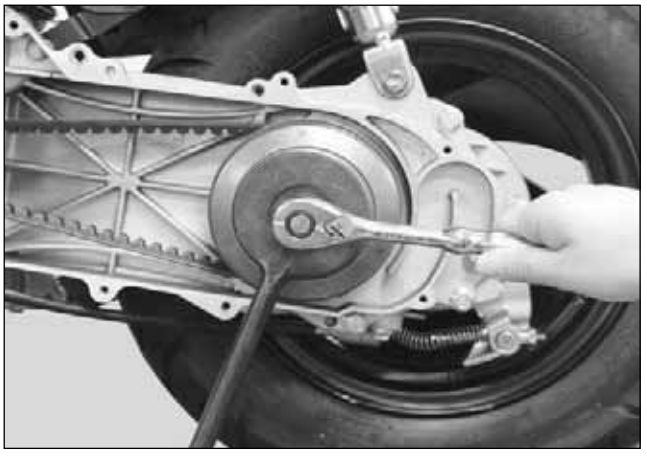


- Hang on drive belt assembled at driven pulley sub ass'y.
- Between drive face and movable drive face, then assemble it to drive shaft in reverse side.



- Assemble clutch outer to driven pulley sub ass'y.
- Temporarily install flange nut 10mm to driven pulley, tighten the nut to the specified torque.

TORQUE : 4.0kgf · m
TOOL : UNIVERSAL HOLDER

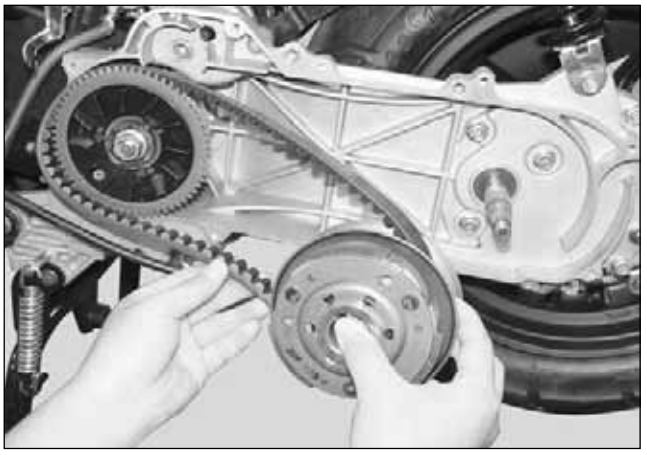


DRIVEN PULLEY ASS'Y

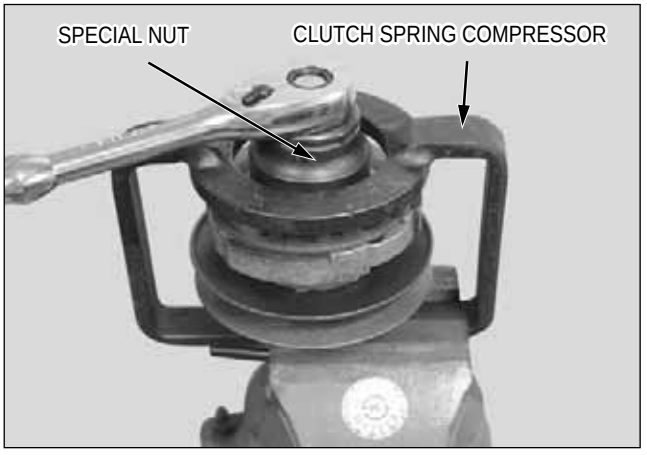
REMOVAL

- Remove the LH. crank case cover. (⇨7-2)
- By using universal holder, grip clutch outer and diassemble flange nut, then disassemble clutch outer.

TOOL : UNIVERSAL HOLDER
DRIVE FACE HOLDER



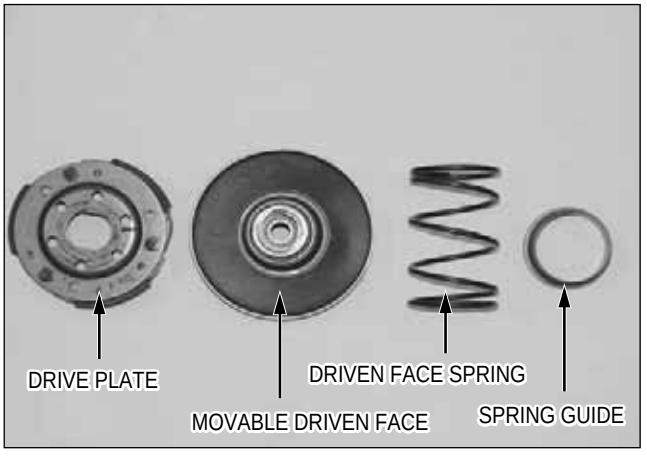
- Disassemble driven pulley ass'y from drive shaft.
- Disassemble drive belt.



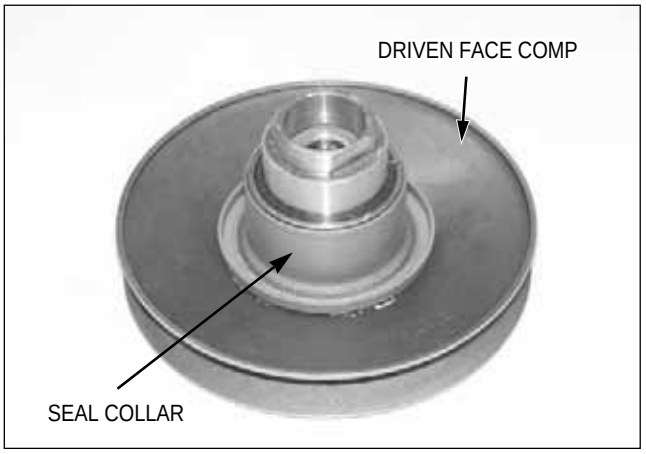
DISASSEMBLY

- Disassemble special nut 28mm.

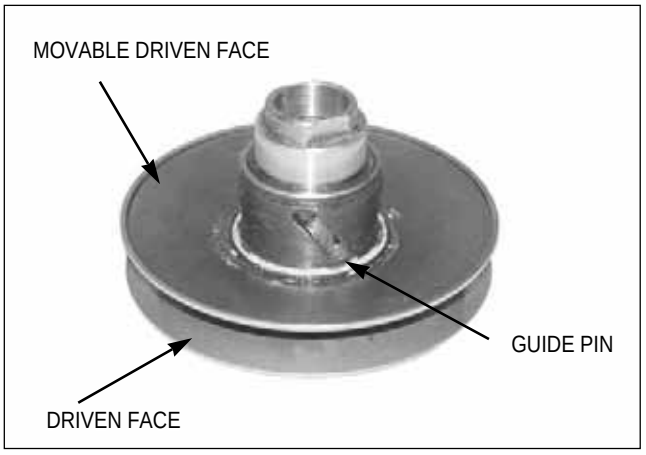
TOOL : CLUTCH SPRING COMPRESSOR
LOCK NUT WRENCH



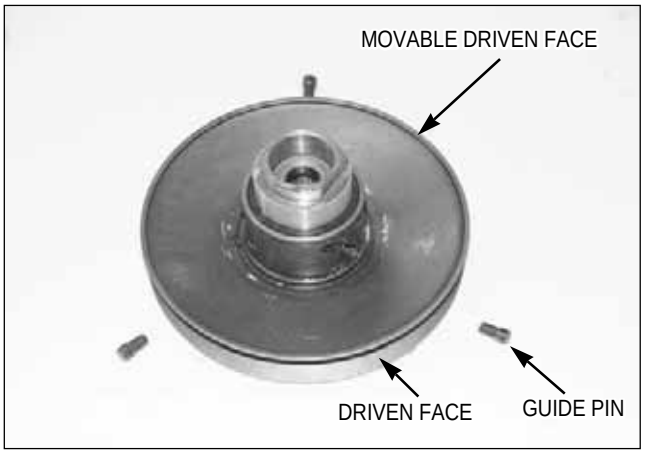
- Disassemble drive plate ass'y.
- Disassemble driven face spring.
- Disassemble driven face spring guide.



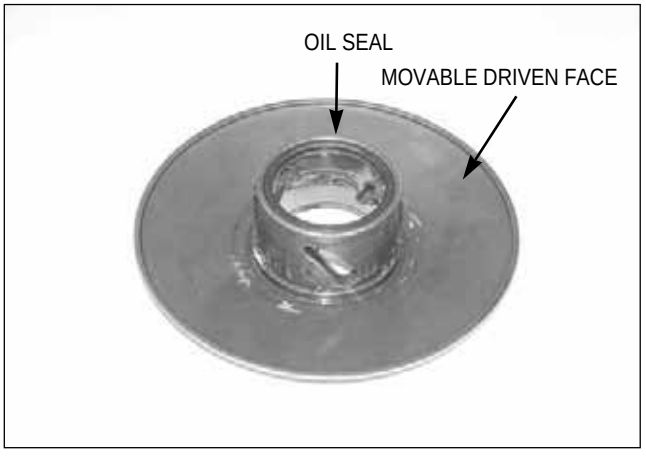
- Disassemble seal collar.



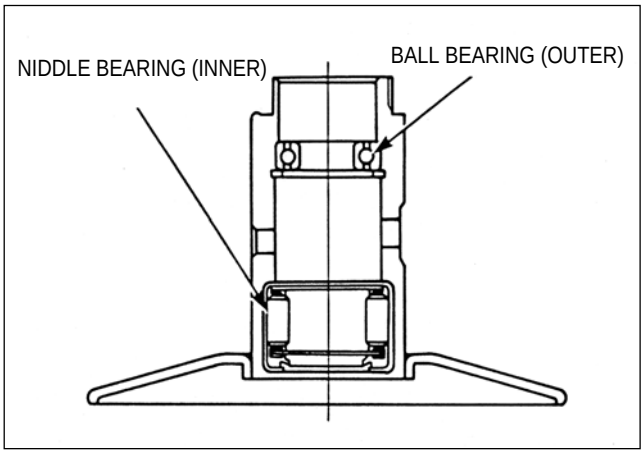
- Pull out roller guide pin and guide roller.



- Pull out movable driven face.
- Disassemble O-ring from movable driven face.
- Disassmeble oil seal from movable driven face.

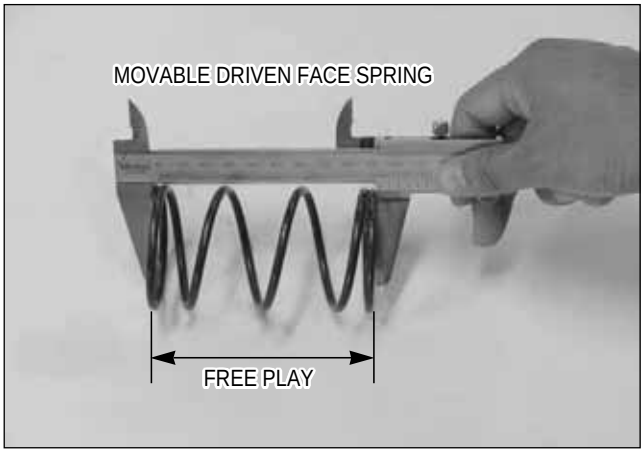


- Disassemble movable driven face.



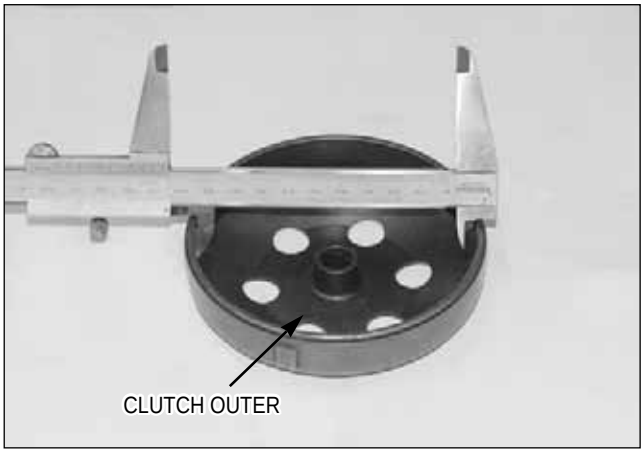
INSPECTION

- Check each part
- Check driven face needling bearing(inside) for damage or excessive play and replace necessary. Turn the inner race of the outer bearing with your finger. Check that the bearing turns smoothly and quietly, and that the bearing outer race fits securely.



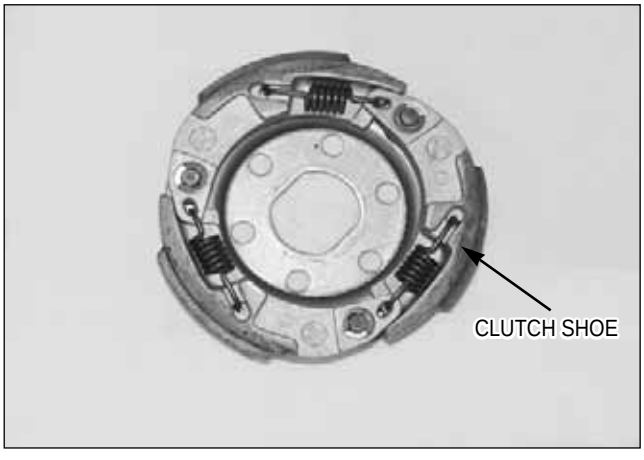
- Measure the free length of the driven pulley spring and replace if the service limit is exceeded.

SERVICE LIMIT : 163.7MM



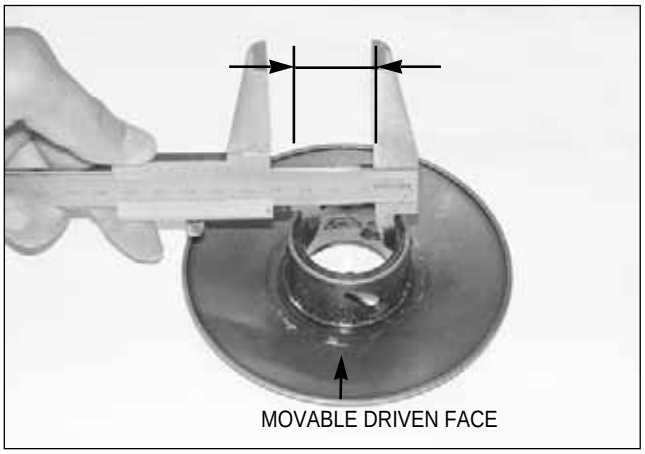
- Check worn or damage of clutch outer.
- Measure the inner diameter of clutch outer.

SERVICE LIMIT : 107.5MM



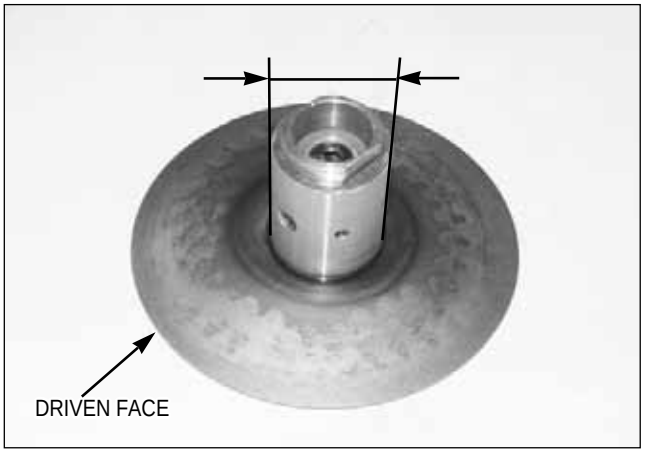
- Check damage or worn of clutch shoe.
- Measure the thickness of each shoe.
- Replace if the service limit is exceedede.

SERVICE LIMIT : 1.5 MM



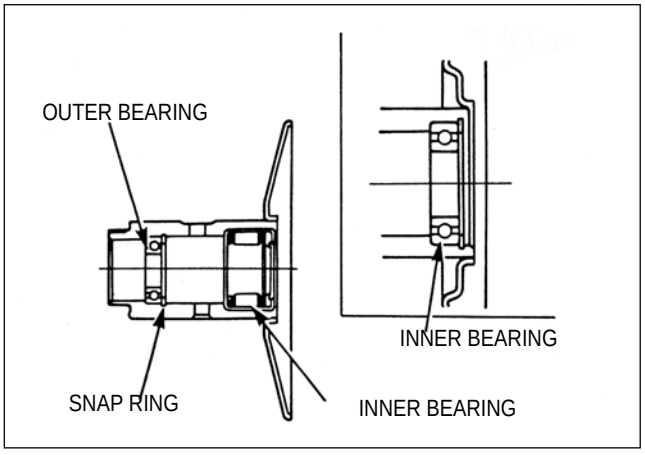
- Check damage or worn of movable drive face.
- Check whether worn of movable driven face guide home.
- Measure inner diameter of movable driven face.

SERVICE LIMIT : 34.06MM



- Check worn or damage of driven face.
- Measure outer diameter of driven face.

SERVICE LIMIT : 33.94MM

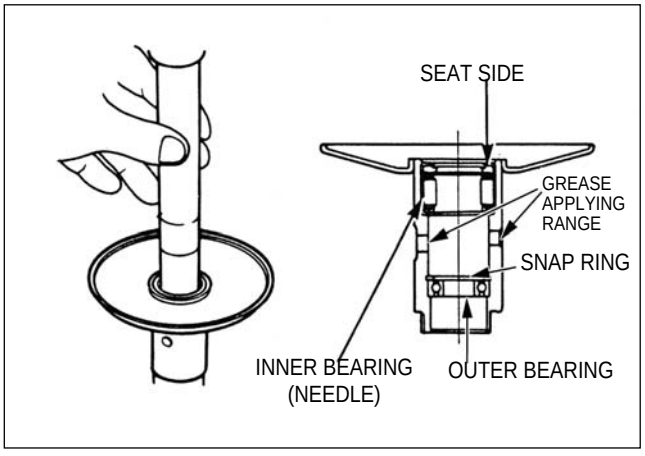


REPLACE DRIVEN FACE BEARING

- Replace inner bearing.
- Remove snap ring, disassemble outer bearing to the side of inner bearing.
- Assemble new replacement outer bearing.
- Assemble snap ring.
- Apply grease to the designated position of right side picture.

APPLYING GREASE CAPACITY : 9.0~9.5g

- Assemble new replacement inner bearing.

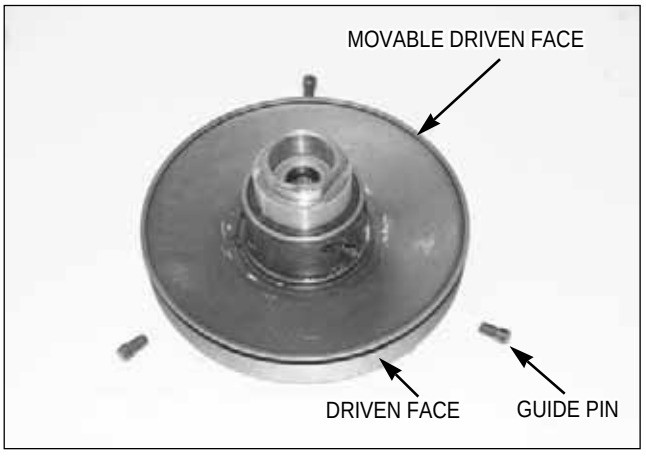


NOTE

- Assemble completely cir clip to the home.
- Input inner bearing by press.

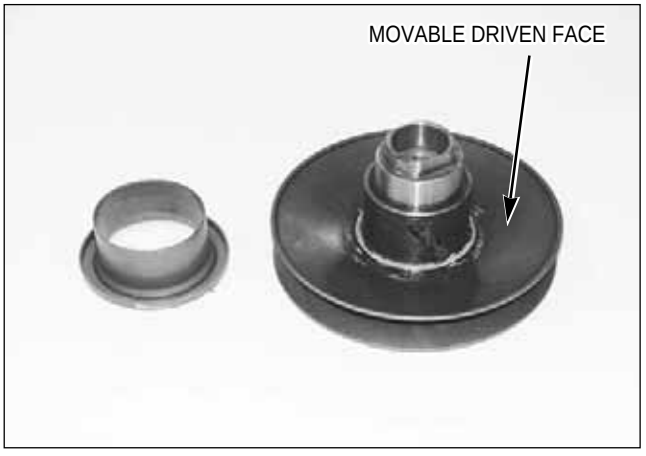
TOOL : Bearing driver attachment

Driver pilot

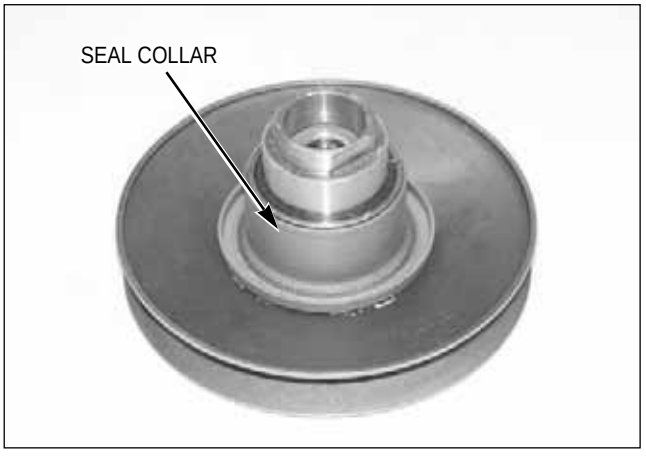


ASSEMBLY

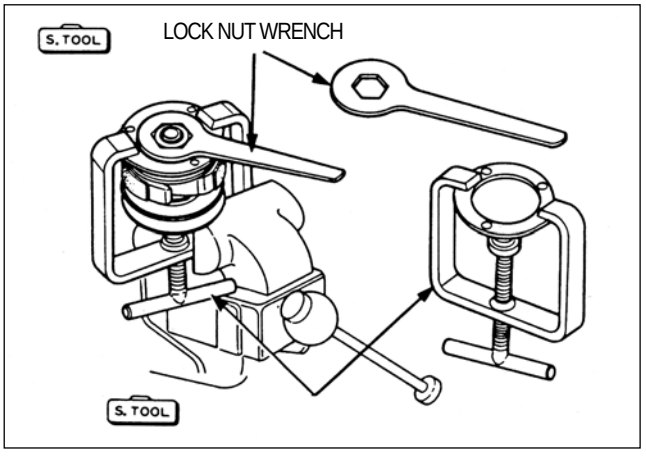
- Assemble oil seal, o-ring to movable driven face.
- Assemble movable driven face to driven face.
- Assemble guide roller and roller pin.



- Assemble movable driven face to driven face.
- Assemble guide roller and roller pin.



- Assemble seal collar.

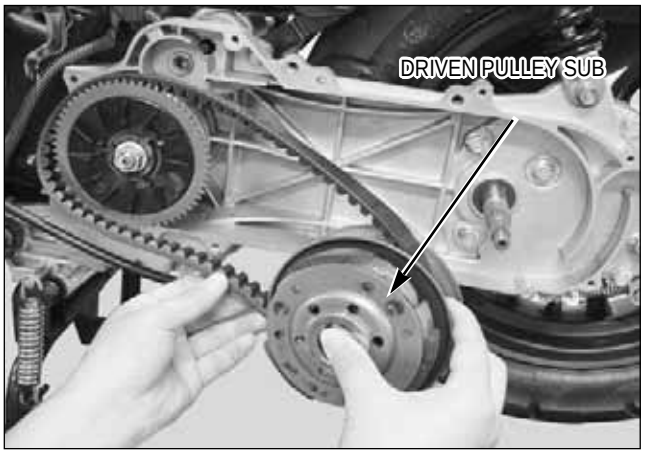


ASSEMBLY

- Assemble spring guide and drive face, drive plate ass'y.
- Compress special nut 28mm to be assembled by clutch spring compressor
- Fix clutch spring compressor like right picture, assemble lock nut based on designated torque by using lock nut wrench.

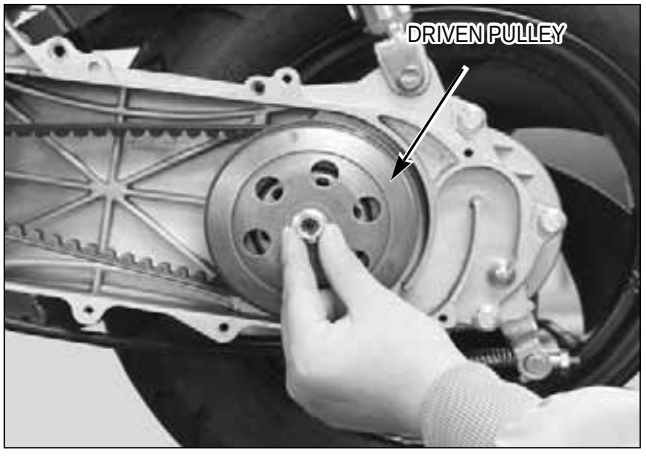
- Remove spring compressor.

TORQUE : 5.5kgf · m
TOOL : LOCK NUT WRENCH
CLUTCH SPRING COMPRESSOR

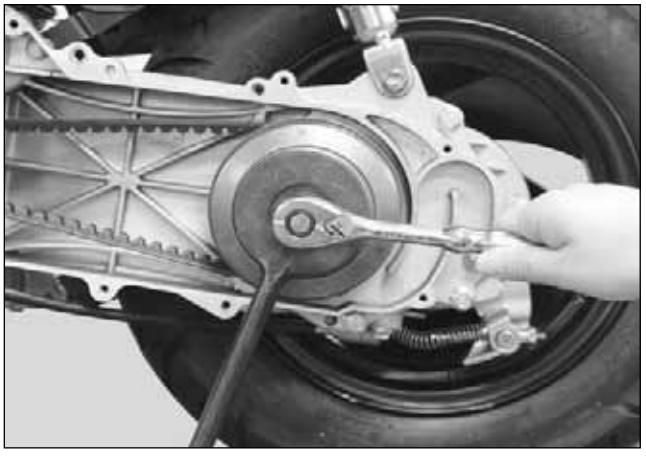


DRIVEN PULLEY ASSEMBLY

- Turn right driven pulley ass'y and widen maximumly assembled home for belt
- Assemble drive belt to drive pulley sub ass'y, then assemble to drive shaft.

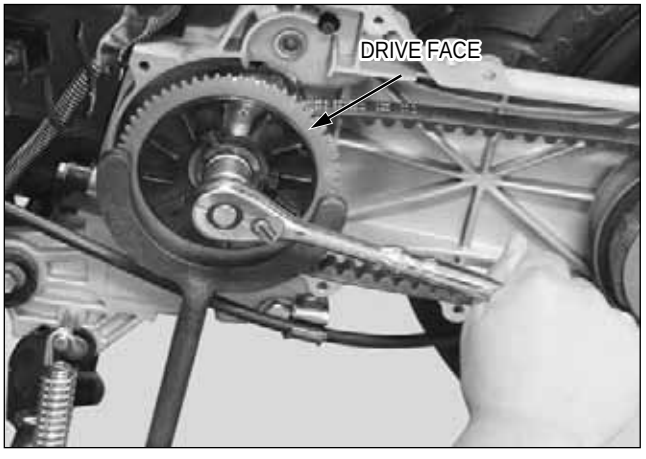


- Assemble clutch outer to driven pulley sub ass'y, assemble temporarily special flange nut.



- After fixing clutch outer to universal holder, then fasten flange nut 10mm as the specified torque.
  TORQUE : 4.0kgf · m
  TOOL : UNIVERSAL HOLDER

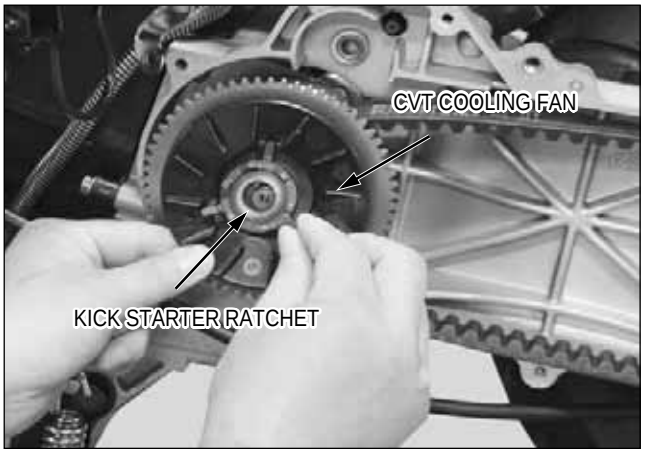
- Assemble LH. Side cover.



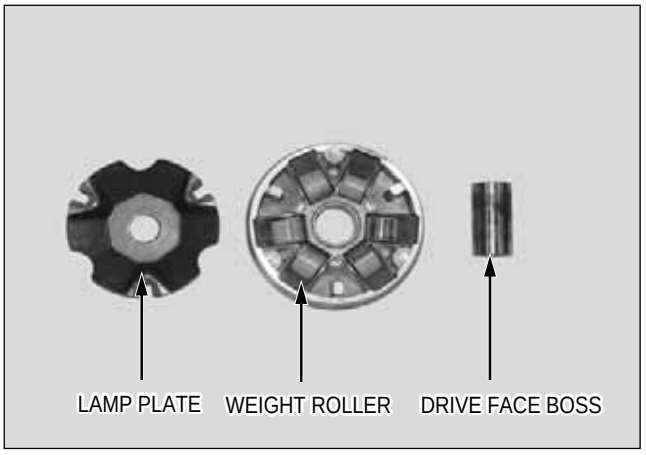
MOVABLE DRIVE FACE

REMOVAL

- Disassemble LH. Side cover.
- Disassemble start pinion ass'y.
- Hold the drive face using the clutch center holder and remove hex nut 12mm and drive face.
  TOOL : DRIVE FACE

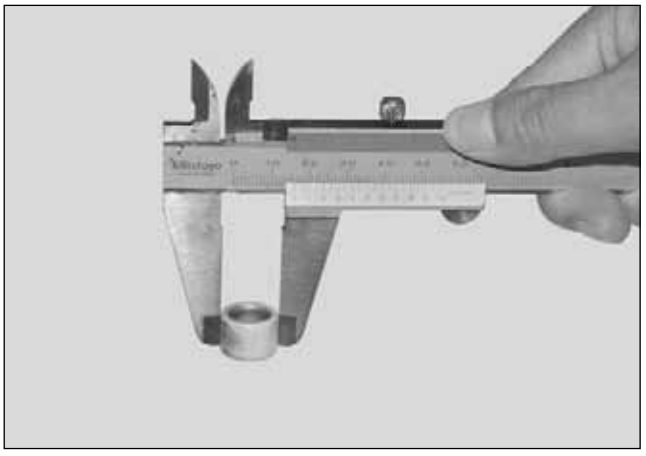


- Disassemble kick starter rachet.
- Disassemble CVT cooling fan.
- Disassemble drive face.
- Disassemble drive face boss.
- Disassemble movable drive face.

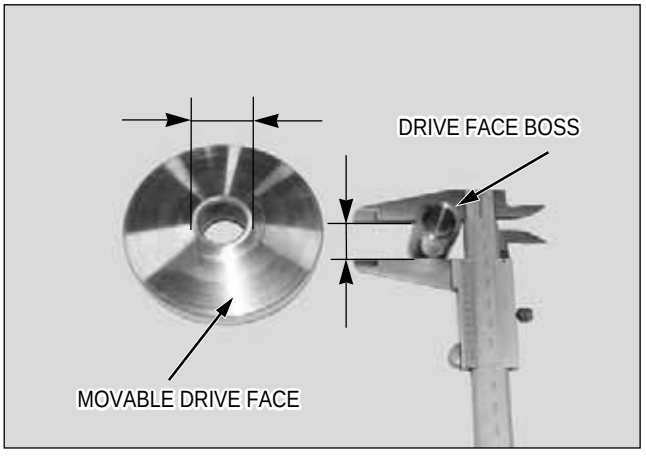


INSPECTION

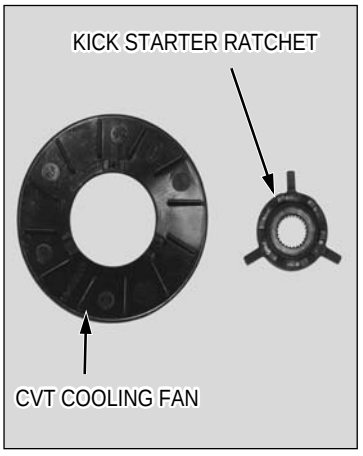
- The weight rollers push on the movable drive face(by centrifugal force).
- Worn or damaged weight rollers will interfere with this force, is a reason of bad working of drive face.



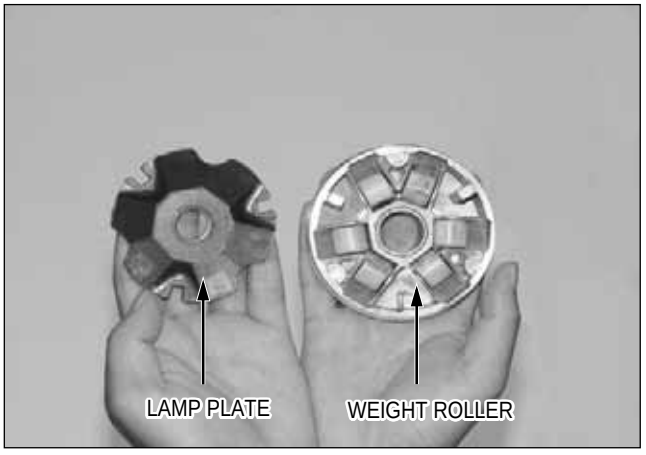
- Damage or side worn of weight roller→ replace
- Measure outer diameter of weight roller.
  SERVICE LIMIT : 15.4MM



- Measure inner diameter of movable drive face.
  SERVICE LIMIT : 20.1MM
- Measure outer diameter of movable drive face boss.
  SERVICE LIMIT : 19.91MM
- Damage or worn of movable drive face boss → replace.

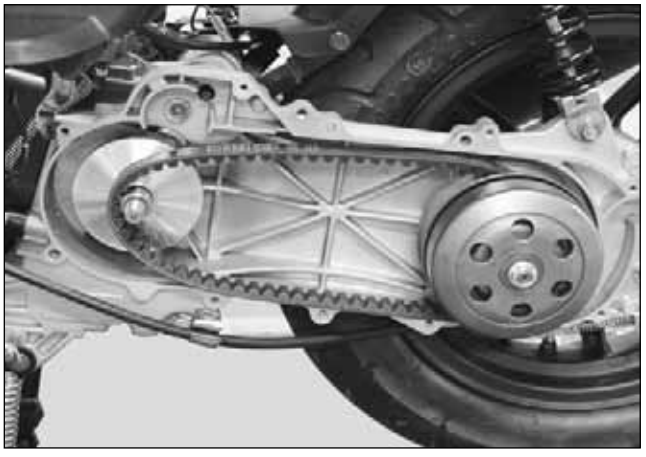


- Check drive face.
- Check worn or damage of CVT cooling fan.



ASSEMBLY

- Assemble weight rollers to movable drive face.
- Assemble lamp plate.

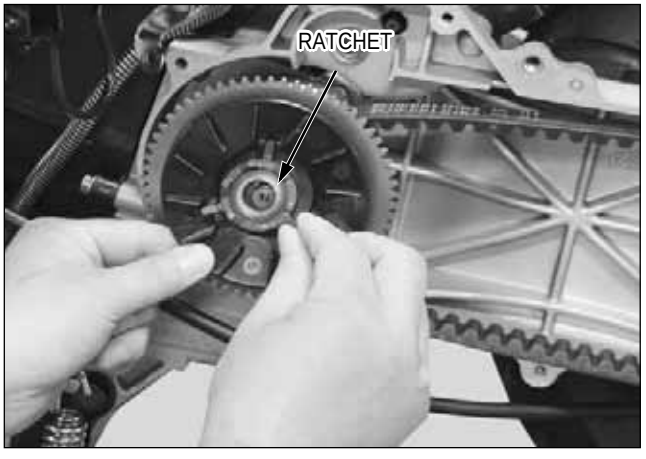


NOTE

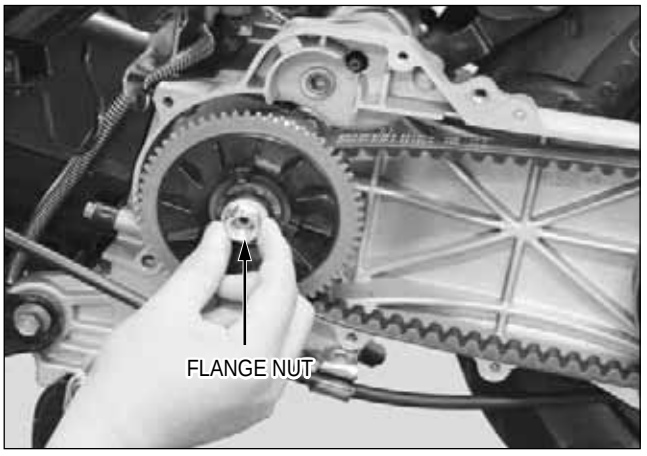
• Do not apply grease to the pulley side of movable drive face

- If done, clean it.

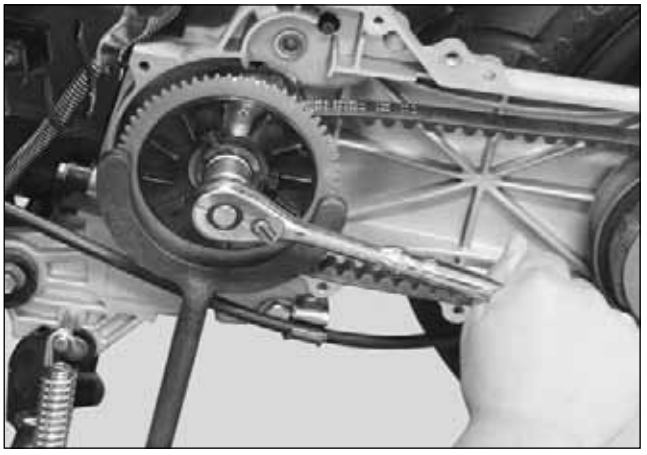
- Assemble movable drive face boss and movable drive face to LH. Crank shaft.
- Assemble drive belt to crank shaft.



- Assemble drive face.
- Assemble CVT cooling fan and rachet.



● Assemble drive face to the serration side of LH. Crank shaft, then assemble hext nut 12mm.



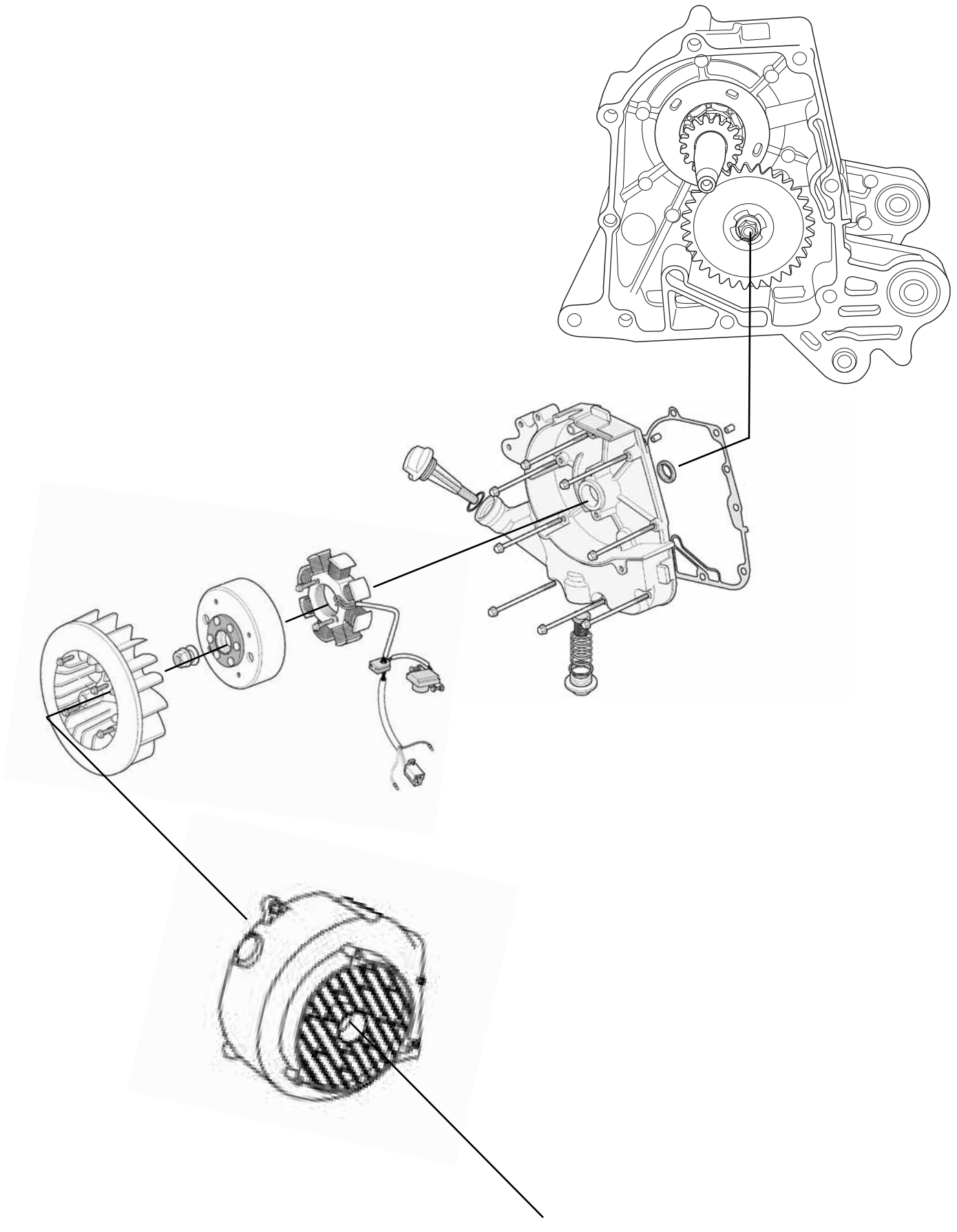
● By using drive face holde, fasten drive face nut.
TORQUE : 5.5kgf · m
TOOL : DRIVE FACE

NOTE

- Assemble drive pulley nut as specified torque.
- Assemble by completely fitting drive face and crankshaft sereration.
- Fix fly wheel to universal holder if drive pulley holder can not be used.

● Assemble 2 dowel pins and gasket
● Assemble LH. Side cover .

MEMO



8. A.C. GENERATOR /RH. CRANK CASE COVER

SERVICES INFORMATION · · · · · · · · · 8-1
COOLING FAN COVER · · · · · · · · · · · 8-2
AC GENERATOR · · · · · · · · · · · · · · 8-4
RH. CRANK CASE COVER · · · · · · · · · 8-4

SERVICE INFORMATION

GENERAL SAFETY

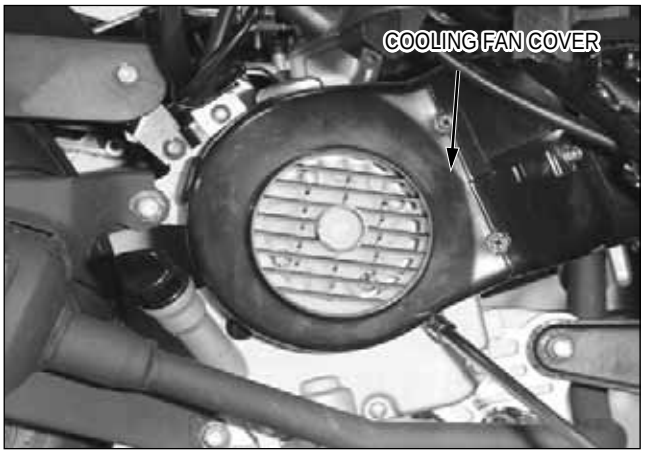
- This section describes the removal and assembling of the A.C. generator.
- For the information of A.C. generator inspection, refer to the section 15.
- The charging systme can be maintained without removing the engine.

TORQUE VALUES

FLY WHEEL NUT	5.5kgf · m
RH. CRANK CASE COVER BOLT	1.0kgf · m

TOOL

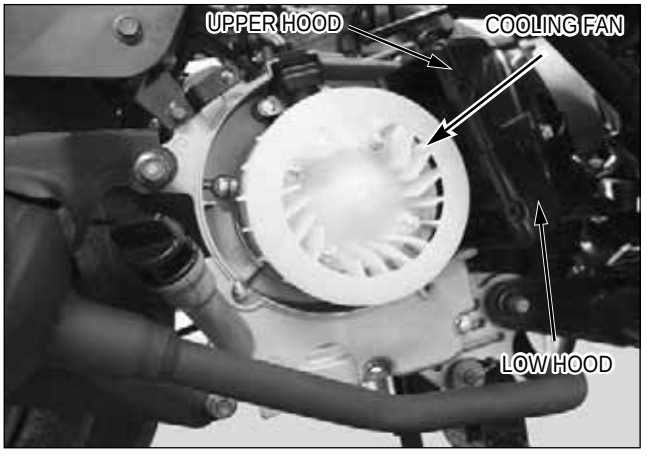
A.C.G. ROTOR PULLER



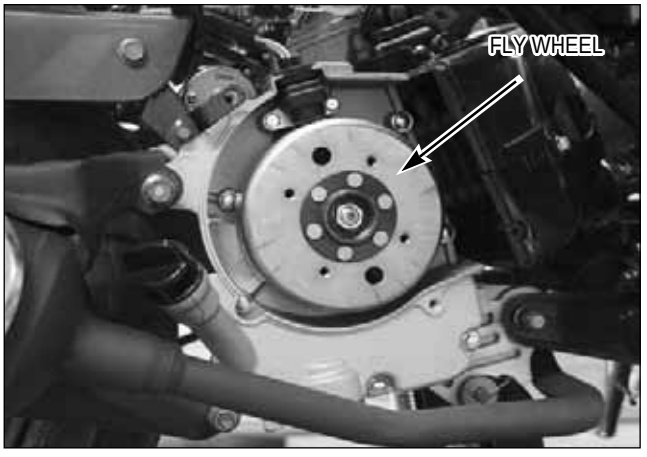
COOLING FAN COVER

REMOVAL

- Remove the muffler.
- Loosen the 1 tapping screws and 2 flange bolts securing the cooling fan.



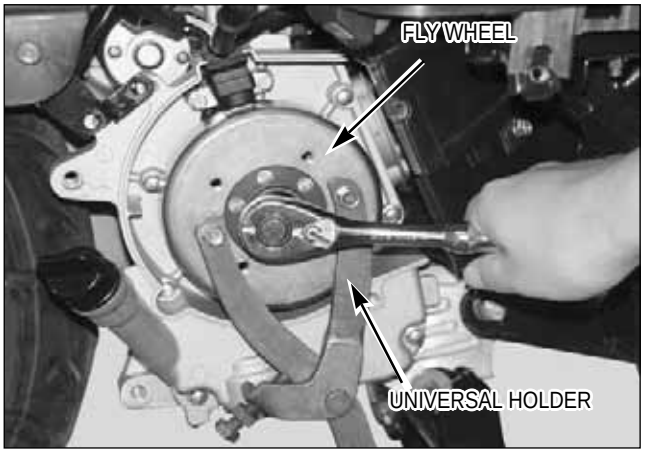
- Upper hood and low hood can be remove after removing the engine from the frame.



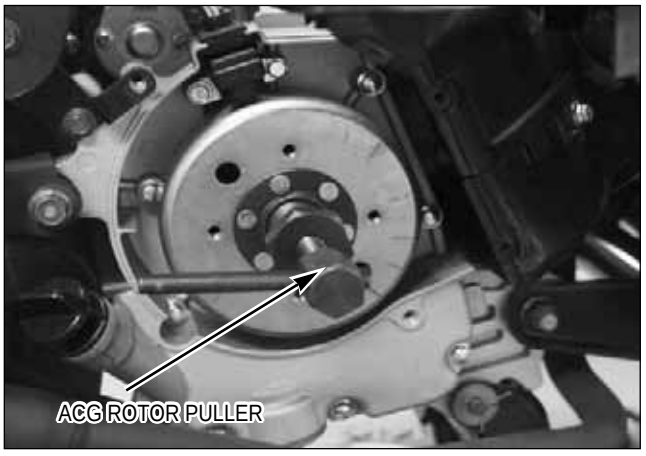
A.C GERNERATOR

REMOVAL

- Remove the cooling fan cover.
- Remove the cooling fan.



- Install the universal holder on flywheel.
- If the universal holder cannot be used, remove the LH. crankcase cover at the left side of crankshaft and hold the drive face with the drive face holder.
- Untie hex nut 12mm.

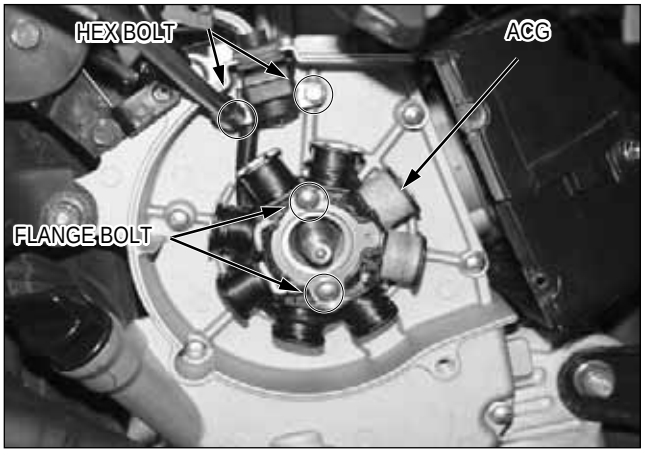


● Loosen the flange nit securing the fly wheel and remove the flywheel using the A.C.G. rotor puller.

CAUTION

- The flywheel may easily remove if you rotate the puller while tapping the roller shaft metal hammer.
- Always use a holder and a puller to remove the flywheel. Do not try to remove the flywheel by hammering directly on it. The crank shaft or components could be damaged.
- After disassembling fly wheel, check whether woodruff key damaged or not.

TOOL: A.C.G ROTOR PULLER
UNIVERSAL HOLDER
DRIVE FACE HOLDER



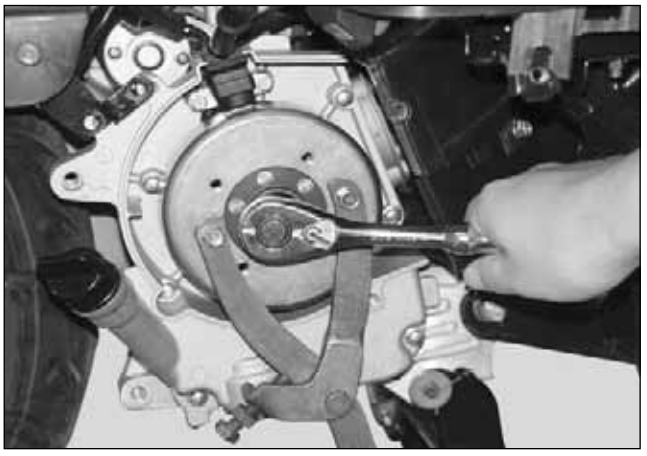
● Loosen the 2 flange bolts securing stator and remove the stator.
● Loosen the 2 bolts securing the pulse generator and remove it.

DISASSEMBLE

● ACG wire coupler and connecter connected with wire harness.

ASSEMBLY

● Assemble ACG stator to RH. crank case cover.
● Clean crank shaft taper side.
● Clean the inside of fly wheel.
● Check woodruff key, assemble the home of fly wheel to woodruff key.



● If the universal holder cannot be used, remove the LH.crankcase cover at left side of the crankshaft, and hold the drive face with the drive face holder.

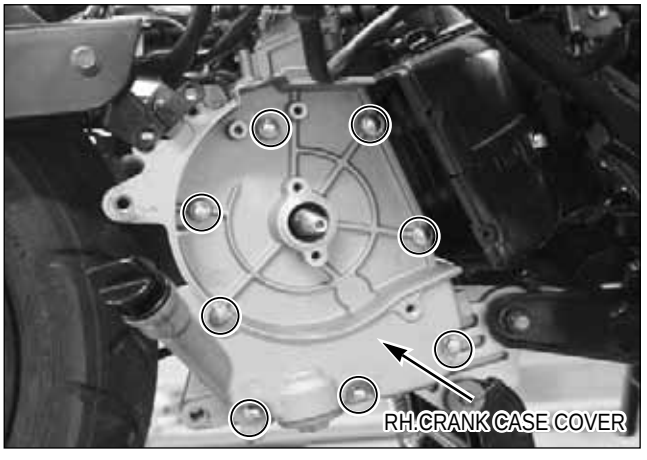
TORQUE : 5.5kgf · m
TOOL : UNIVERSAL HOLDER

● Assemble cooling fan.(⇨8-2)
● Assemble ACG. cord coupler and connector at wire harness, and cramp cords.
● Assemble cooling fan cover.

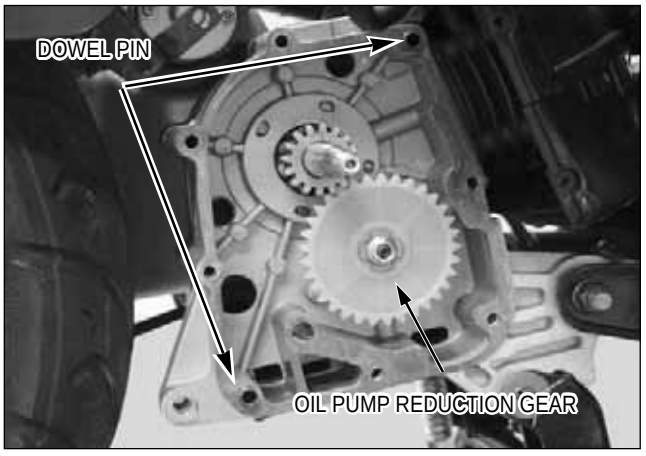
RH. CRANK CASE COVER

REMOVAL

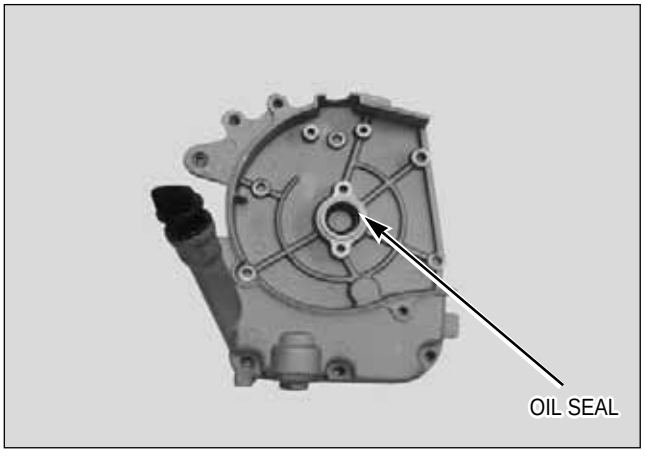
● Disassemble the following parts.
  - Muffler
  - Cooling fan cover
  - Cooling fan
● Remove engine oil.



● Untie 8 flange bolts assembled at RH. Crank case cover.
● Disassemble RH. Crank case cover.



- Pull out gasket and dowel pin.



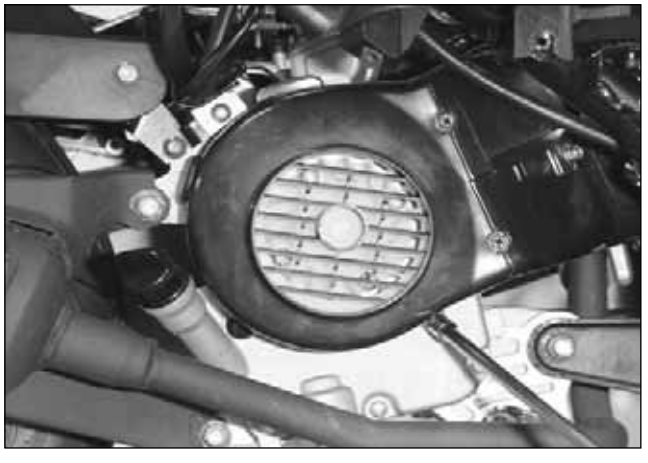
- Check worn or damage of oil seal, if necessary, replace with the new oil seal.
- Disassemble RH. Crank case cover oil seal and replace with the new one.

ASSEMBLY

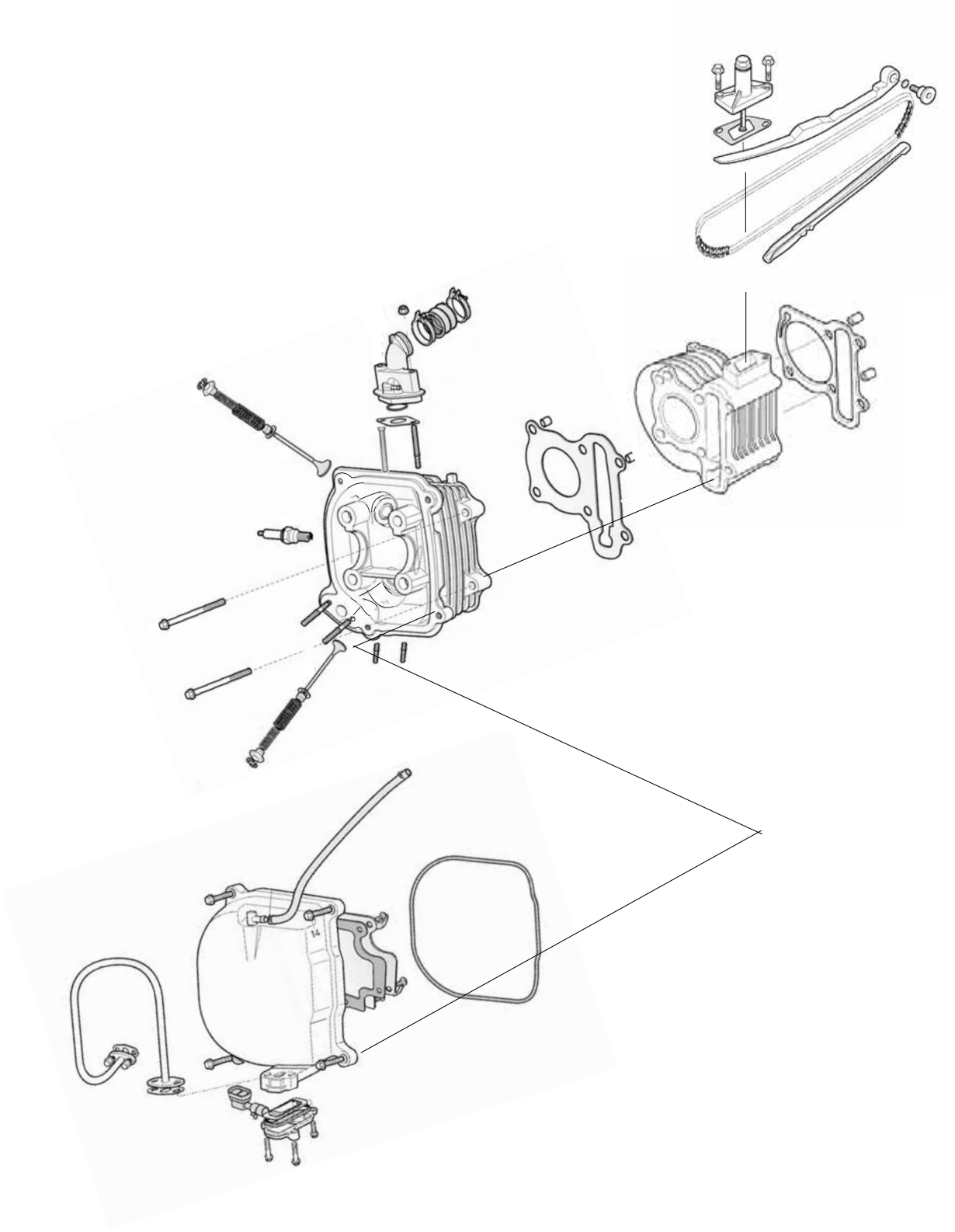
- Assemble RH. Crank case cover.
- Assemble AC Generator.
- Assemble muffler.

NOTE

• Assemble completely by fitting correctly to the home.



- Assemble fly wheel.
- Assemble cooling fan.
- Assemble cooling fan cover.



9. CYLINDER HEAD / CYLINDER / PISTON

SERVICE INFORMATION · · · 9-1
TROUBLE SHOOTING · · · · · 9-2
CAM SHAFT · · · · · · · · · 9-3
CYLINDER HEAD · · · · · · · 9-5
VALVE SPRING · · · · · · · · 9-6
IN / EX VALVE · · · · · · · · 9-6
VALVE GUIDE · · · · · · · · 9-7
VALVE SEAT · · · · · · · · · 9-8
IN / EX VALVE ASSEMBLY · · 9-8
CYLINDER HEAD ASSEMBLY · 9-10
CAM SHAFT ASSEMBLY · · · 9-10

SERVICE INFORMATION

GENERAL SAFETY

- The rocker arm and the camshaft can be served without removing the engine.
- The oil of camshaft is supplied through the cylinder head oil hole.
- Clean th oil hole prior to assembling the cylinder head.

SPECIFICATIONS

UNIT : mm

ITEM			STANDARD VALUE	SERVICE LIMIT
ROCKER ARM	ROCKER ARM INNER DIAMETER		10.000 - 10.015	10.10
	ROCKER ARM OUTER DIAMETER		9.972 - 9.987	9.91
CAM SHAFT	CAM HEIGHT	IN	25.736 ~ 25.741	25.68
		EX	25.55 ~ 25.60	25.52
CYLINDER HEAD WARFAGE			-	0.05
VALVE VALVE GUIDE	VALVE SPRING FREE LENGTH	IN	34.1 ~ 30.5	32.6 ~ 29
	VALVE STEM OUTER DIAMETER	IN	4.975 - 4.990	4.965
		EX	4.965 - 4.980	4.955
	VALVE GUIDE IN. DIAMETER	IN, EX	5.000 - 5.012	5.040
	CLEARANCE BETWEEN STEM AND GUIDE	IN	0.010 - 0.040	0.075
		EX	0.020 - 0.050	0.085
	VALVE SEAT WIDTH		0.8	1.3

TORQUE VALUES

SPARK PLUG	1.2kgf · m
CAM SHAFT HOLDER 7mm NUT	2.0kgf · m
CAM CHAIN TENSIONER BOLT	1.1kgf · m
CAM CHAIN TENSIONER SEALING BOLT	0.4kgf · m
CYLINDER HEAD COVER BOLT	1.1kgf · m
CYLINDER HEAD BOLT	1.2kgf · m
TAPPET ADJUST NUT	1.1kgf · m

TOOL

-VALVE GUIDE REAMER
-VALVE GUIDE DRIVER
-VALVE SPRING COMPRESSOR

TROUBLESHOOTING

- Engine top-end problems usually affect engine performance. These can be diagnosed by a compression or leak down test or by tracing noises to the top-end with a sounding rod or stethoscope.

Low compression

- Valves
  - Incorrect valve adjustment
  - Burned or bent valve
  - Incorrect valve timing
  - Broken valve spring
  - Uneven valve seating
- Cylinder head
  - Leaking or damage head gasket
  - Warped or cracked cylinder head
- Cylinder head defect

Excessive smoke

- Worn valve guide or valve stem
- Damaged valve stem seal
- Worn or damaged piston ring

Rough idle

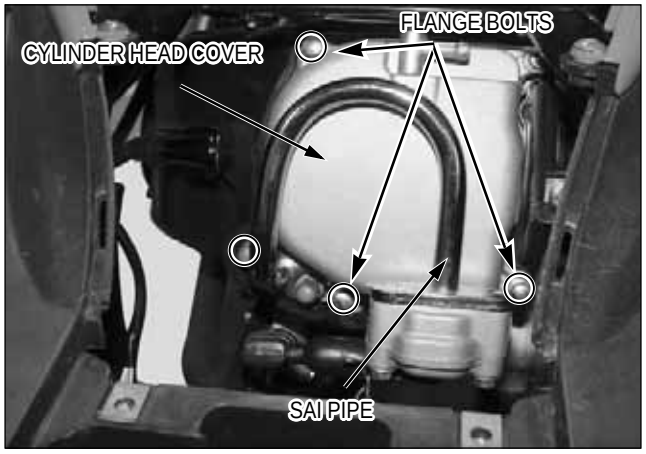
- Low cylinder compression

Compression too high

- Excessive carbon built-up on piston or combustion chamber

Excessive noise

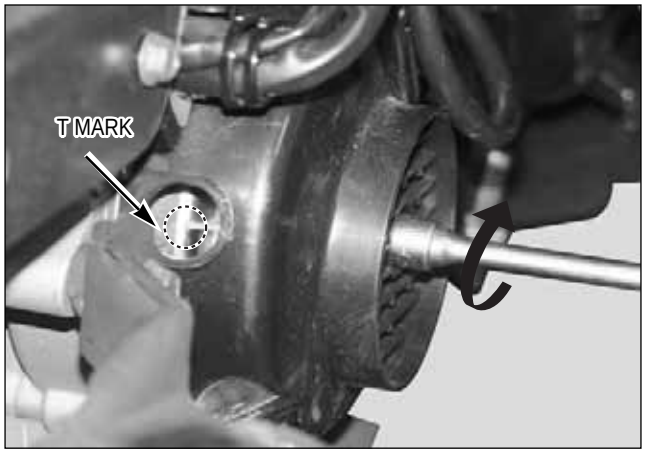
- Incorrect valve adjustment
- Sticking valve or broken valve spring
- Damaged or worn camshaft
- Worn rocker arm and / or shaft
- Loose or worn cam chain
- Worn or damaged cam chain tensioner
- Damaged cylinder head gasket
- Incorrect spark plug installation



CAMSHAFT

REMOVAL

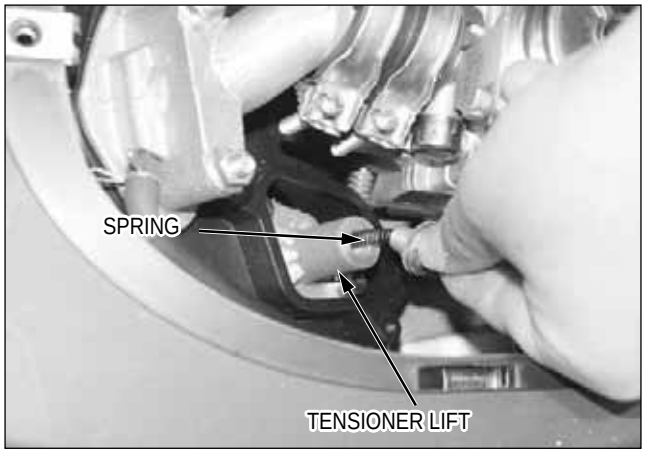
- Remove the luggage box.
- Remove the center cover.
- Untie 4 cylinder head cover bolts.
- Untie 2 SAI pipe cap nuts and cover.



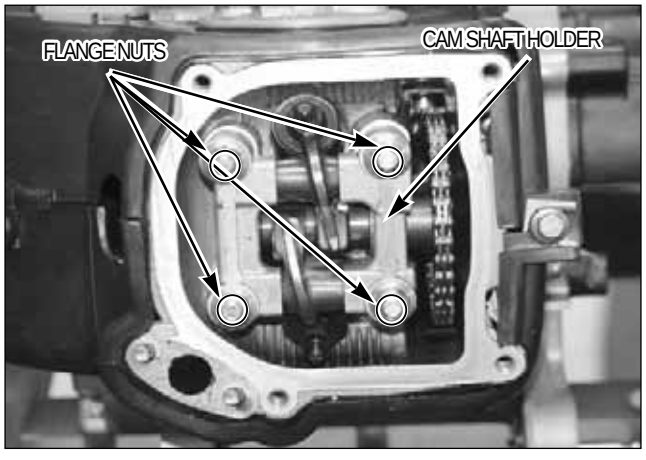
NOTE

- The camshaft can be maintained without removing the engine.

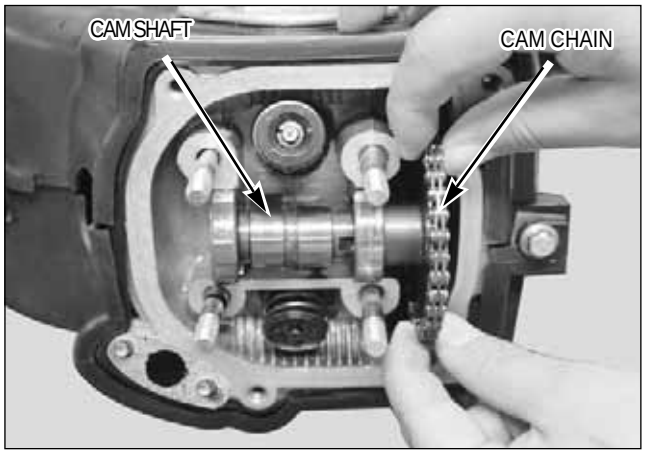
- Remove the cooling fan cover.
- Turn the crankshaft to the left and align the ”T” mark of the flywheel with the index mark of the RH. Crankcase cover.
- Verify that the piston is located at the top dead center.
- If all camshaft lobes face downward, rotate the camshaft to the left for one turn(360°), and align “T” mark with the index mark once again.



- Loosen the pan screw of the cam chain tensioner and remove the tensioner lifter.



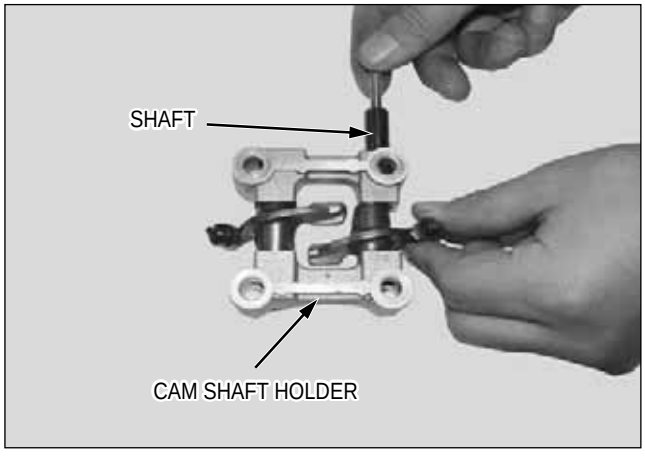
- Loosen the 4 camshaft holder 7mm nuts.
- Remove the camshaft holder from cylinder head.



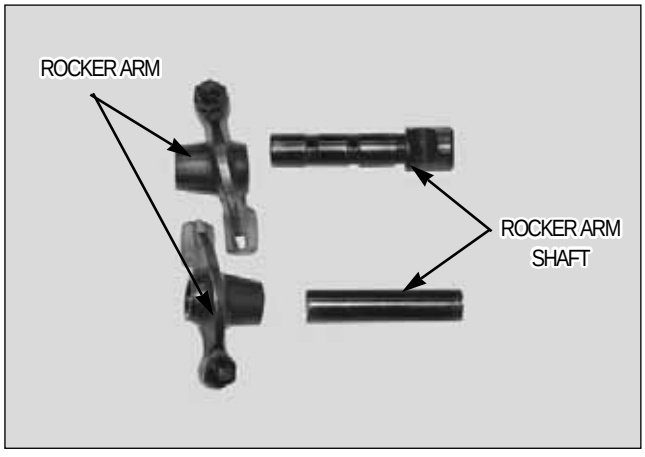
- Remove the cam chain from the cam shaft.

NOTE

• Take precautions not to allow the cam chain to drop into the crankcase.

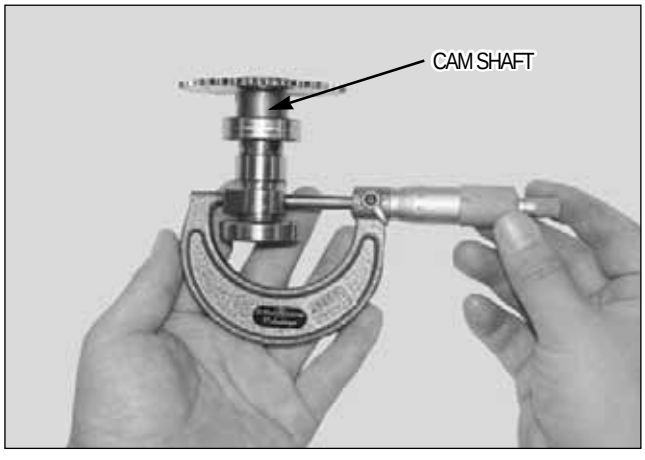


- Install the 5mm bolt into the rocker arm shaft and by pulling bolt, remove the rocker arm shaft..
- Remove the rocker arm.
- Remove the other side rocker arm in the same order.

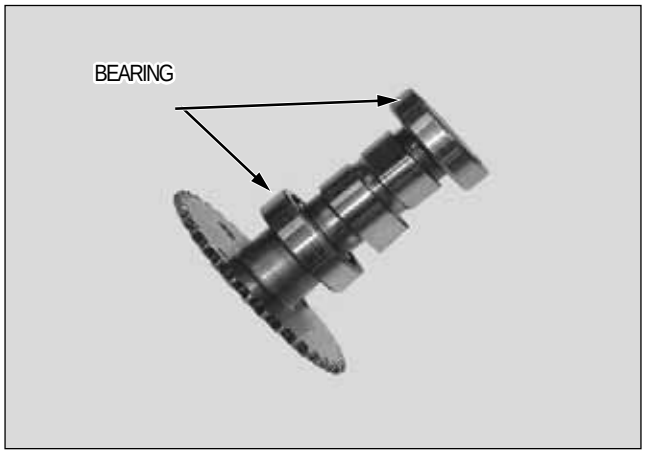


INSPECTION

- Check the rocker arm and rocker arm shaft for wear or damage.
- Measure the inner diameter of the rocker arm.
  SERVICE LIMIT: 10.10 MM
- Measure the outer diameter of rocker arm shaft.
  SERVICE LIMIT: 9.91 MM



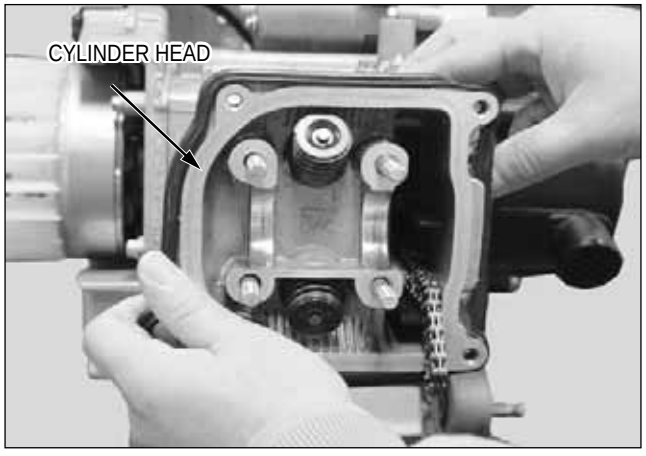
- Check the cam lobed of the camshaft for wear or damage.
  SERVICE LIMIT: IN: 25.68MM
  EX: 25.52 MM



- Manually turn the shaft bearing outer race, and check if it turns smoothly.
- Check damage or worn of bearing, if yes, replace it.
- Install in the reverse order of removal.

CAUTION

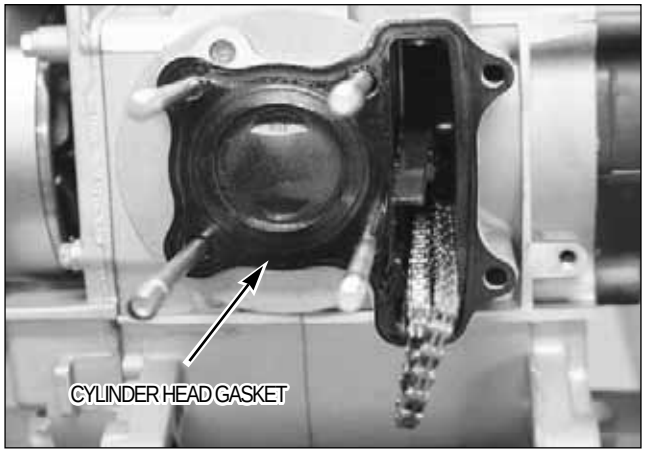
• Be sure to check the valve clearance.



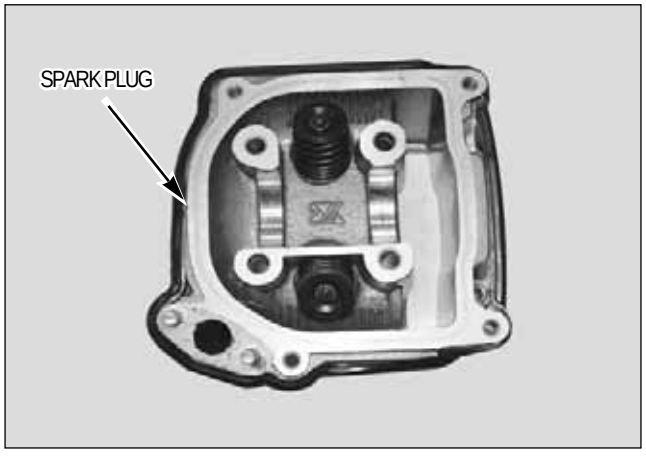
CYLINDER HEAD

REMOVAL

- Remove the engine(6-2).
- Remove the shroud comp(upper, under hood).
- Remove the cylinder head cover.
- Remove the cam shaft holder.
- Remove the cam shaft.
- Remove the S.A.I pipe.

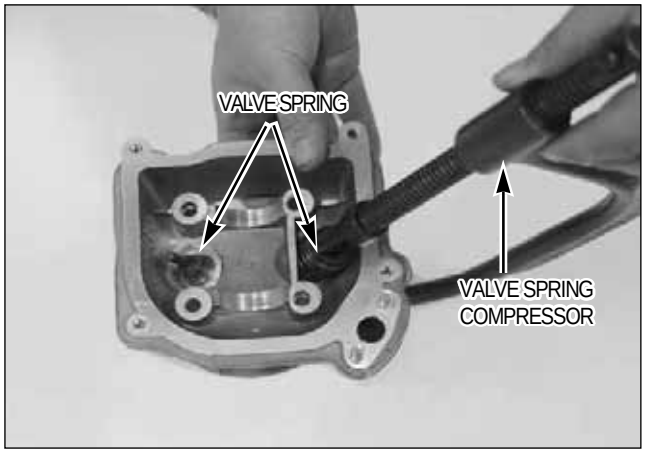


- Remove the cylinder head.
- Remove the cylinder head gasket, dowel pin and cam chain guide from the cylinder.



REMOVAL

- Remove the spark plug from the cylinder head.

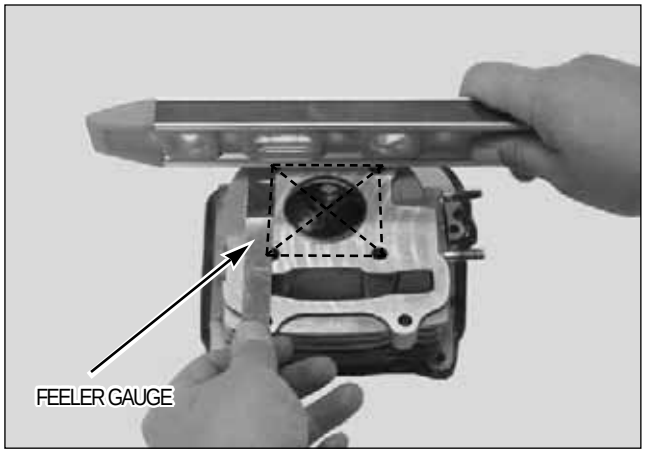


- Remove the valve spring compressor, valve spring, valve cotter, retainer, sparing and valve.

TOOL: VALVE SPRING COMPRESSOR

NOTE

- To prevent the loss of tension, do not compree the spring more than necessary.
- Mark the disassembled parts so that they can be reassembled in to the original position.



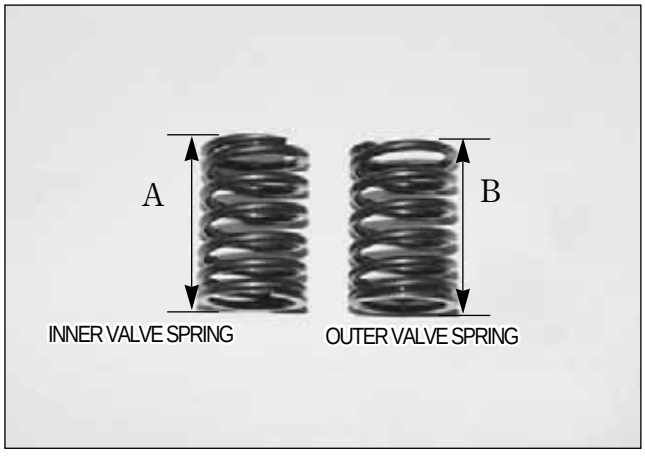
INSPECTION

- Remove the carbon deposits from the inside of combustions chamber.
- Check the spark plug assembling hole and the valve seat for cracks.
- Using a square and a feeler gauge, check the cylinder head distortion.

SERVICE LIMIT: 0.05 MM

NOTE

- Take precautions not to damage the cylinder head gasket attachment.



VALVE SPRING

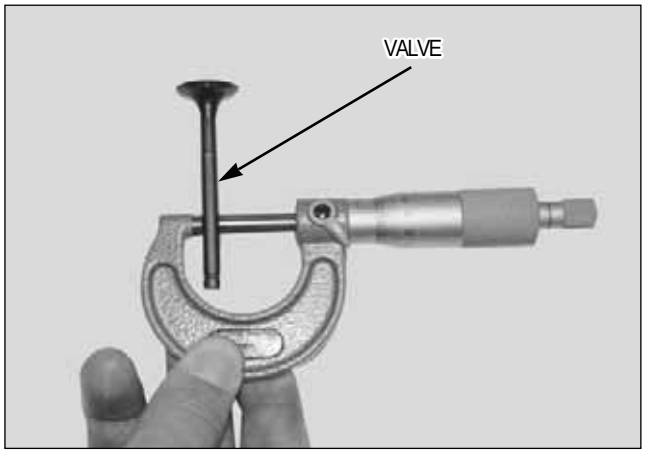
INSPECTION

- Measure the free length of the inner and outer valve springs.

FREE LENGTH : IN 30.5 MM
EX 34.1MM

NOTE

- Replace the valve spring with new one if the length of any one is less than service limit.

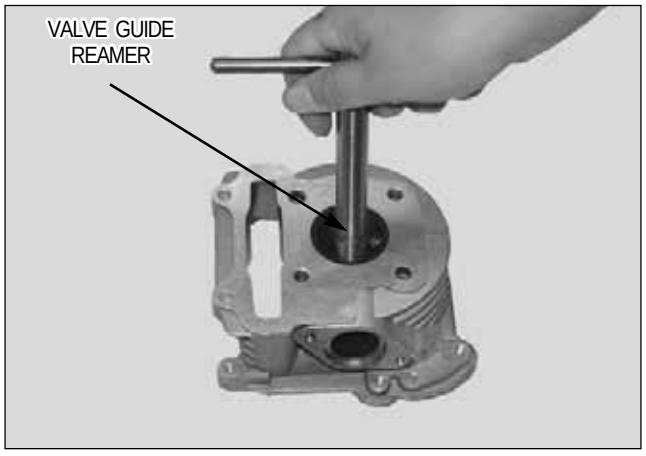


IN / EX VALVE

INSPECTION

- Inspection in/ex. valve stem for bent, seized, abnormal wear of step.
- Insert the valves in their original positions in the cylinder head.
- Measure and record the in/ex.valve stem outer diameter.

SERVICE LIMIT: IN 4.965
EX 4.955



VALVE GUIDE

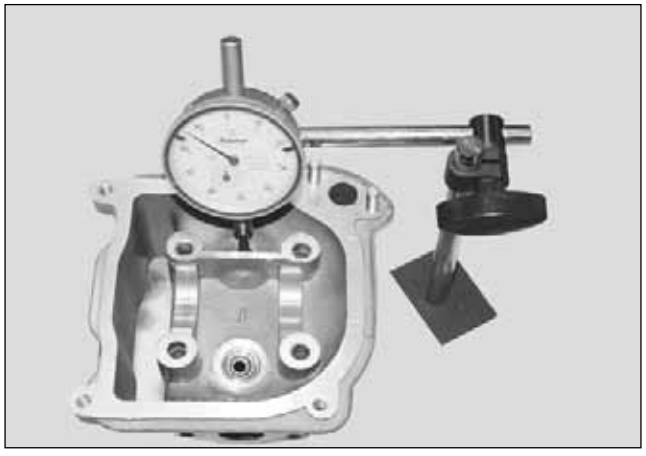
INSPECTION

- Insert the valve guide reamer from the combustion chamber side and ream the guide to remove any carbon built-up before measuring the guide.

NOTE

- Take care to tilt or lean the reamer in the guide while reaming.
- Rotate the reamer clockwise, never counterclockwise when inserting and removing.

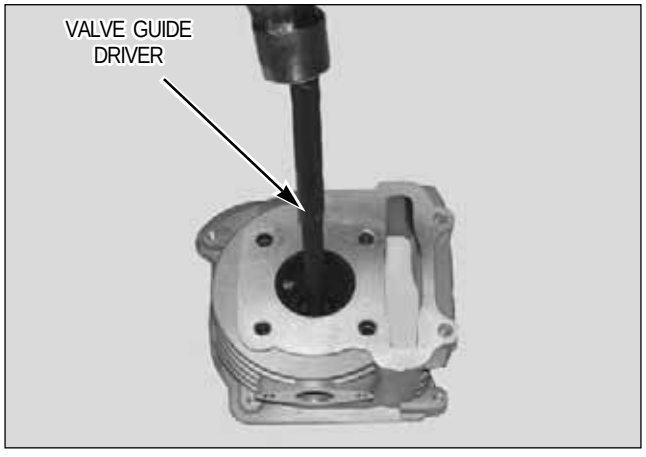
TOOL: VALVE GUIDE REAMER



- Measure and record each valve guid inner diameter.
  SERVICE LIMIT: IN 5.04 MM
  EX 5.05MM

- Measure the guide to stem clearance.
  SERVICE LIMIT: IN 0.075 MM
  EX 0.085 MM

- Measure the inner diameter of the new valve guide. If the measure clearance is not within the service limit, replace the valve.

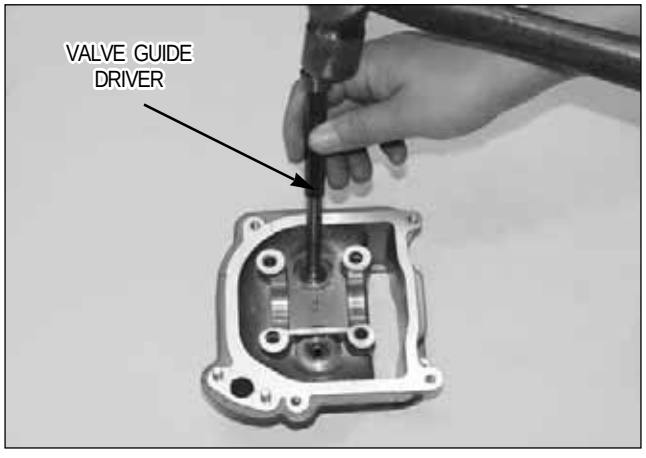


REPLACEMENT

- Heat the cylinder head to 130°C ~ 140°C.(270°F ~ 285°F).

NOTE

- Do not heat the cylinder head beyond 150° C(300° F).
- Because there is burnt risk, do not unskifully work.
- Do not heat locally by using of gas burner when getting cylinder head warm.
- When replacing valve guide, be sure to correct valve seat.

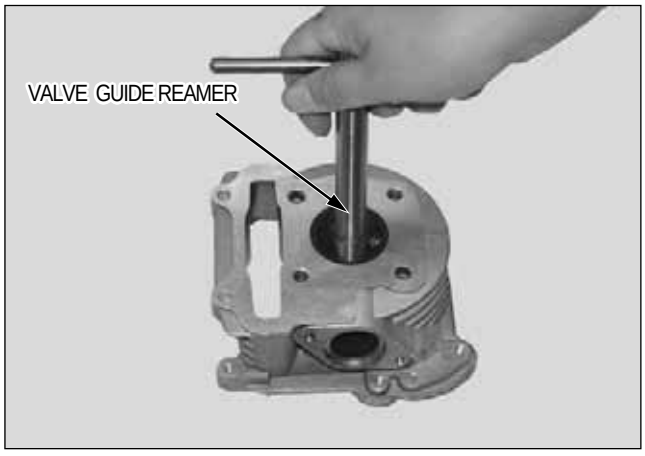


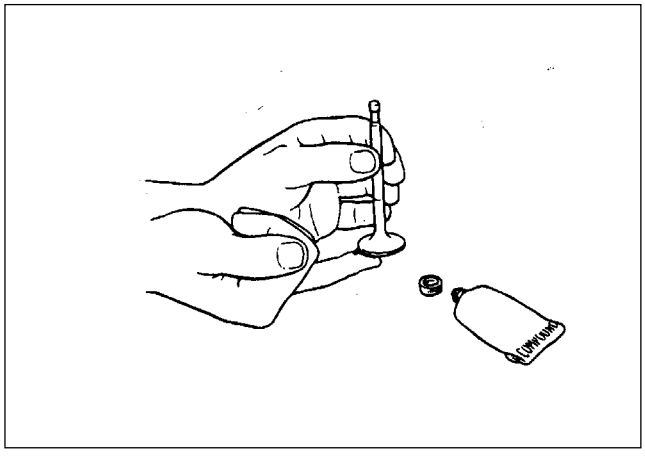
- Support the cylinder head and drive the old guides out of the combustion chamber side of cylinder head.

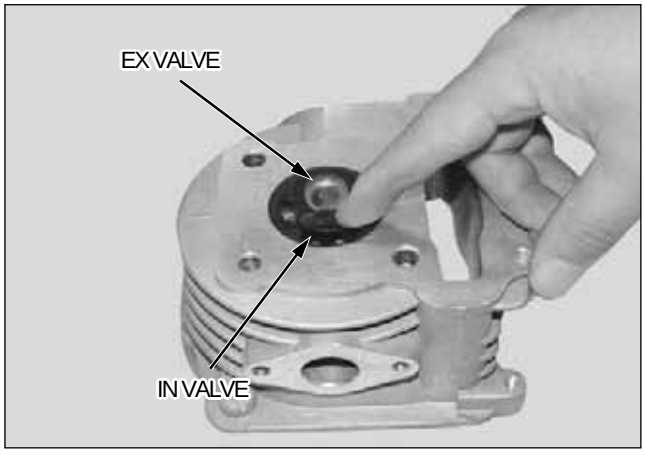
NOTE

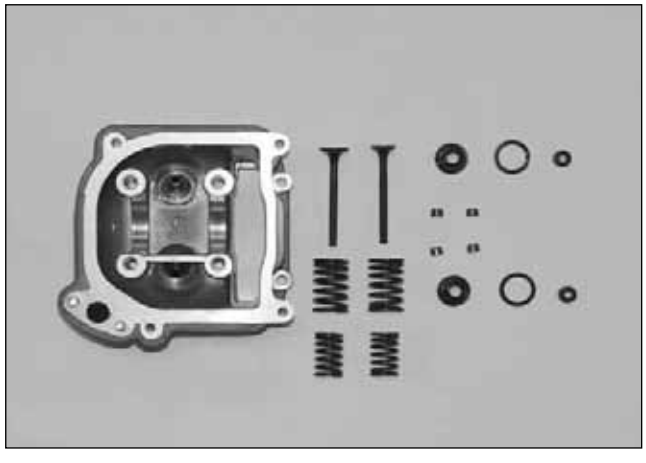
- Avoid damaging the cylinder head when driving the valve guide out.

- Install the new o-ring into the new valve guide.









- Insert the valve guide at upside of cylinder head.
  TOOL: VALVE GUIDE DRIVE

- Insert the valve guide at upside of cylinder head.Insert the valve guide at upside of cylinder head.

NOTE

- Take care not to tilt or lean the reamer in the guide while reaming.
- Otherwise the valve is installed slanted that cause oil leaks from the stem seal and improper valve seat contact and results in the valve seat refacing not able to be performed.
- Use cutting oil on the reamer during this operation.
- Use cutting oil on the reamer during this operation.

TOOL: VALVE GUIDE DRIVER

- Reface the valve seats and clean the cylinder head thoroughly to remove any metal particles.

VALVE SEAT

INSPECTION

- Clean all the intake and exhaust valves thoroughly to remove carbon deposits.
- Apply a light coating of Prussian Blue to each valve face.
- Tap the valve against the valve seat several times with the valve reamer, without rotating the valve to check for proper valve seat contact.

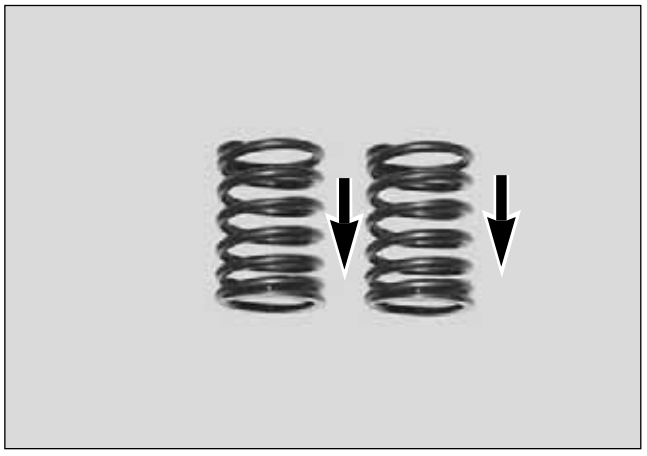
- Remove the valve and inspect the valve seat face.
- The valve seat contact should be within the specified width and evenly all around the circumstance.
- If the valve leans, check the gap between valve guide and stem replace the valve guide if it doesn't work well.

NOTE

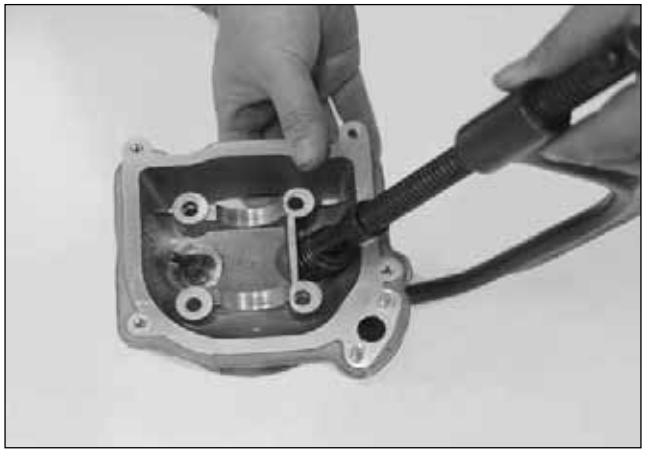
- Valve faces and stem tips cannot be ground. If a valve face or stem tip is rough, worn unevenly or contacts the seat improperly, the valve must be replaced.

IN/ EX.VALVE ASSEMBLY

- Install new stem seals and valve spring seat.
- Lubricate each valve stem with molybdenum disulfide grease and insert the valve into the valve guide.
- Turning a valve too fast can damage the stem seals.
- Check the valve for working properly with up and down.



- For valve spring with varying pitch, install the valve springs with the narrow pitch end facing down.

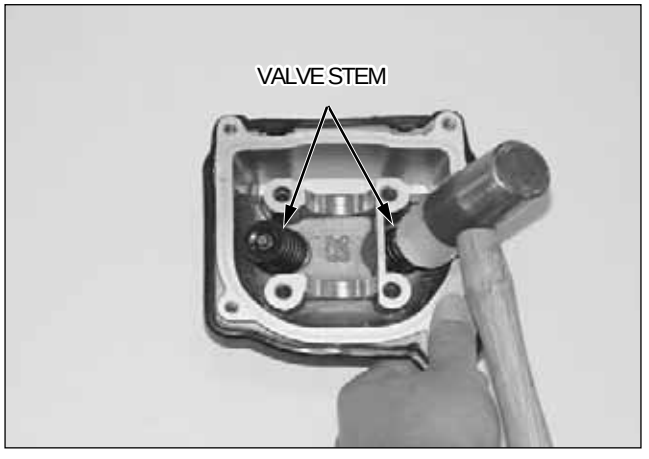


- Install the spring retainer.
- Compress the valve springs and install the valve cotter.

NOTE

- Compressing the valve spring more than necessary when installing the valve cotters may cause looss of valve spring tension.

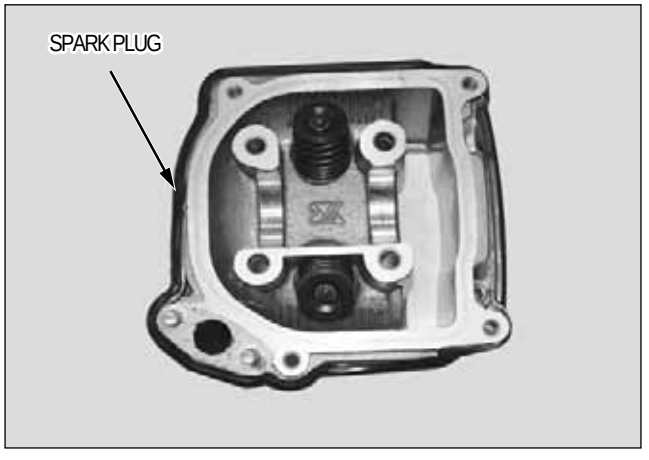
TOOL: VALVE SPRING COMPRESSOR



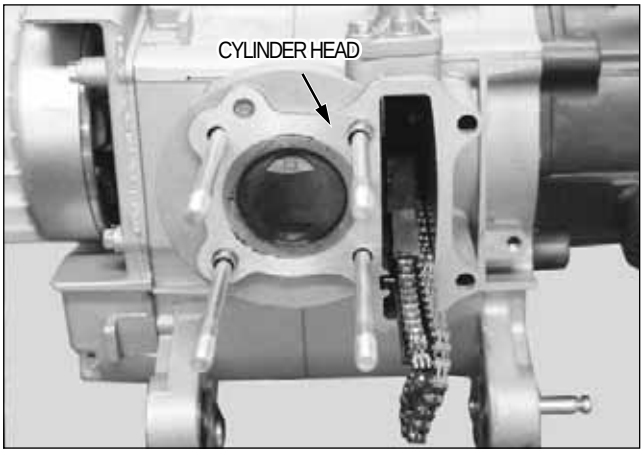
- Tap the valve stems gently with a soft hammer to firmly seat the cotters.

NOTE

- Take necessary precaution not to damage the valve.

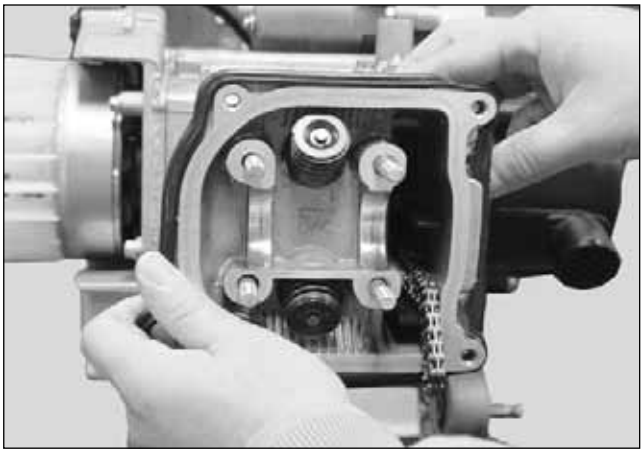


- Take necessary precaution not to damage the valve.
  TORQUE:1.2 kgf · m

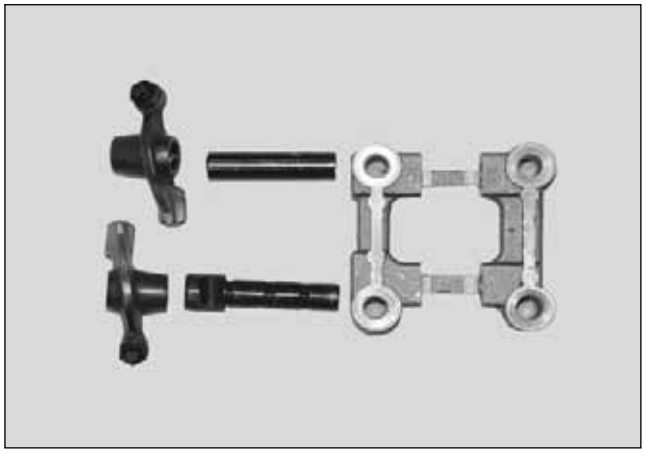


CYLINDER HEAD ASSEMBLY

- Clean the gasket material from the cylinder mating surface.
- Install the cam chain guide to the cylinder.
- Install the dowel pins and new gasket.

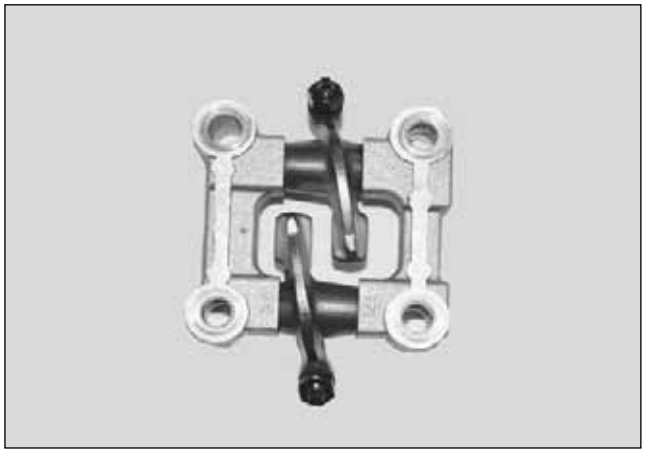


- Install the cylinder head.

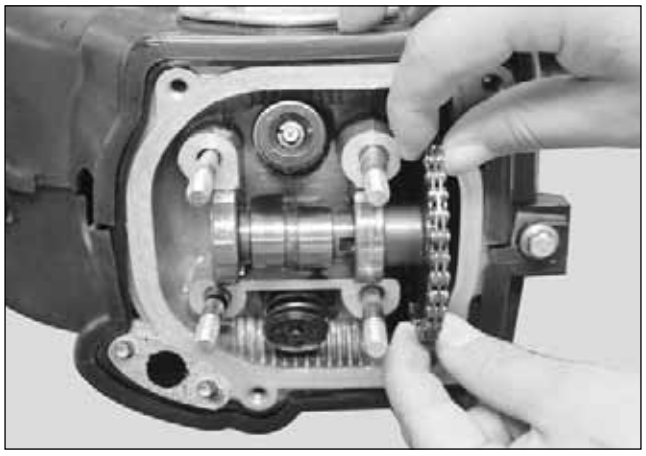


CAMSHAFT ASSEMBLY

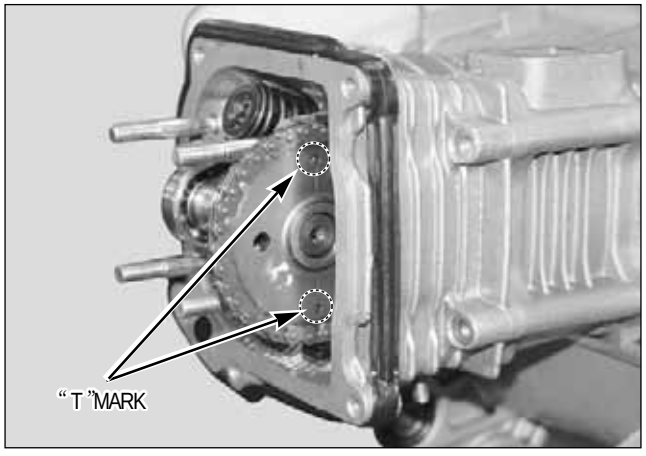
- Apply engine to the rocker arm shaft, and assembly the rocker arm to the camshaft holder.



- Align cam shaft with the bolt hole of the camshaft holder and the fitting side of the rocker arm shaft.



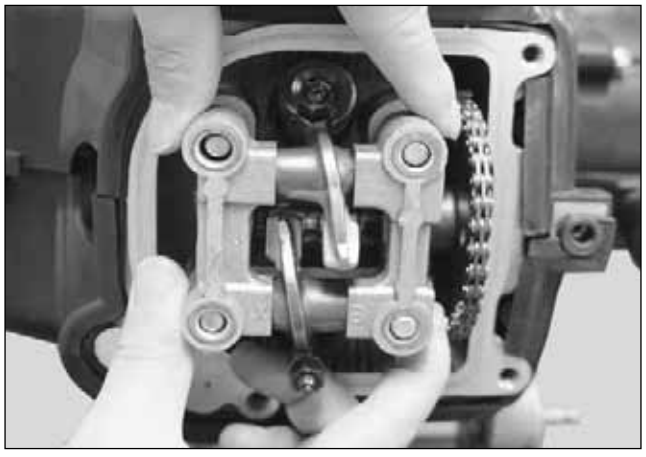
- Apply engine oil to the camshaft and install it on the cylinder head with the cam thread facing downward.



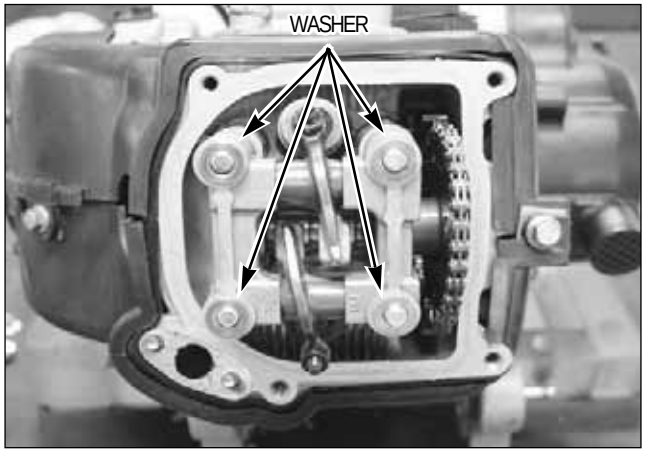
- Assembly the cam chain and cam sprocket after matching the cam sprocket timing mark in parallel with the top pf the cylinder head.
- Slowly rotate the crankshaft counterclockwise and align the "T" mark of the flywheel with the index mark of the RH. crank case cover.

CAUTION

- Take precautions not to allow the cam chain to come off the camshaft tinning gear while turning the camshaft.



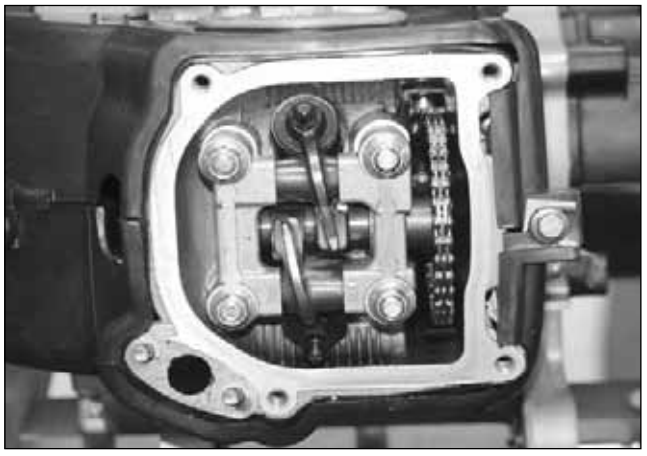
- Install the dowel pins on the cylinder head.
- Assemble cam shaft holder.



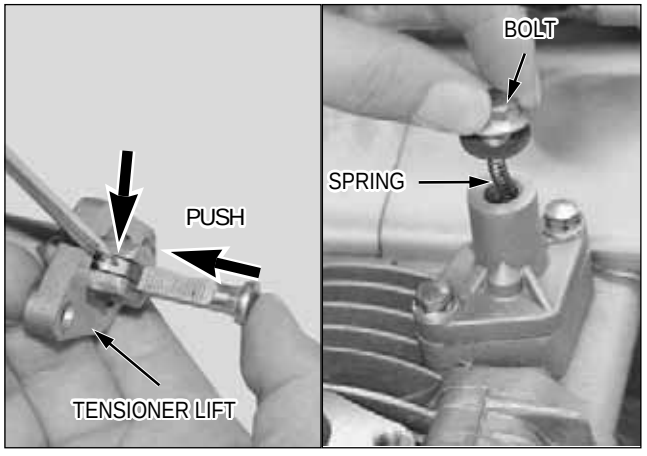
- Assemble washer to cam shaft holder.

CAUTION

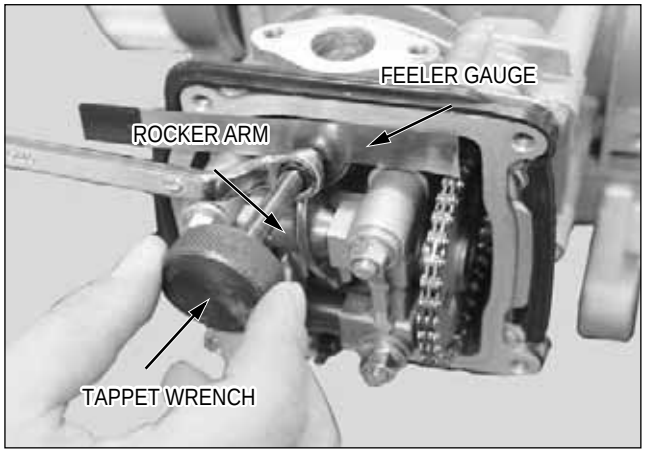
- The hole of the camshaft holder and the fitting section of rocker arm shaft fit section must be in alignment.



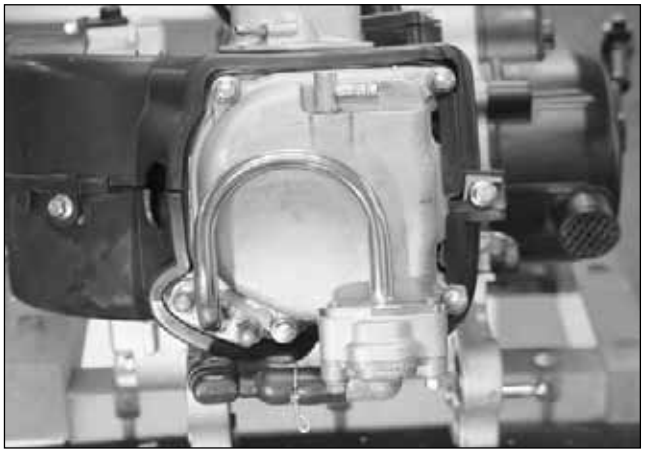
- Install flange nut and tighten them driving with 2-3 times.
  TORQUE : 2.0kgf · m



- Pull out spring from cam chain tensioner lifter.
- Push the tensioner shaft clockwise with a small driver like the right picture, and insert the shaft into the body completely.
- Assemble new gasket to tensioner lifter and tensioner lift to cylinder.
- Assemble flange bolt
- Insert tensioner lift spring and assemble with bolt.
  TORQUE : 1.1kgf · m



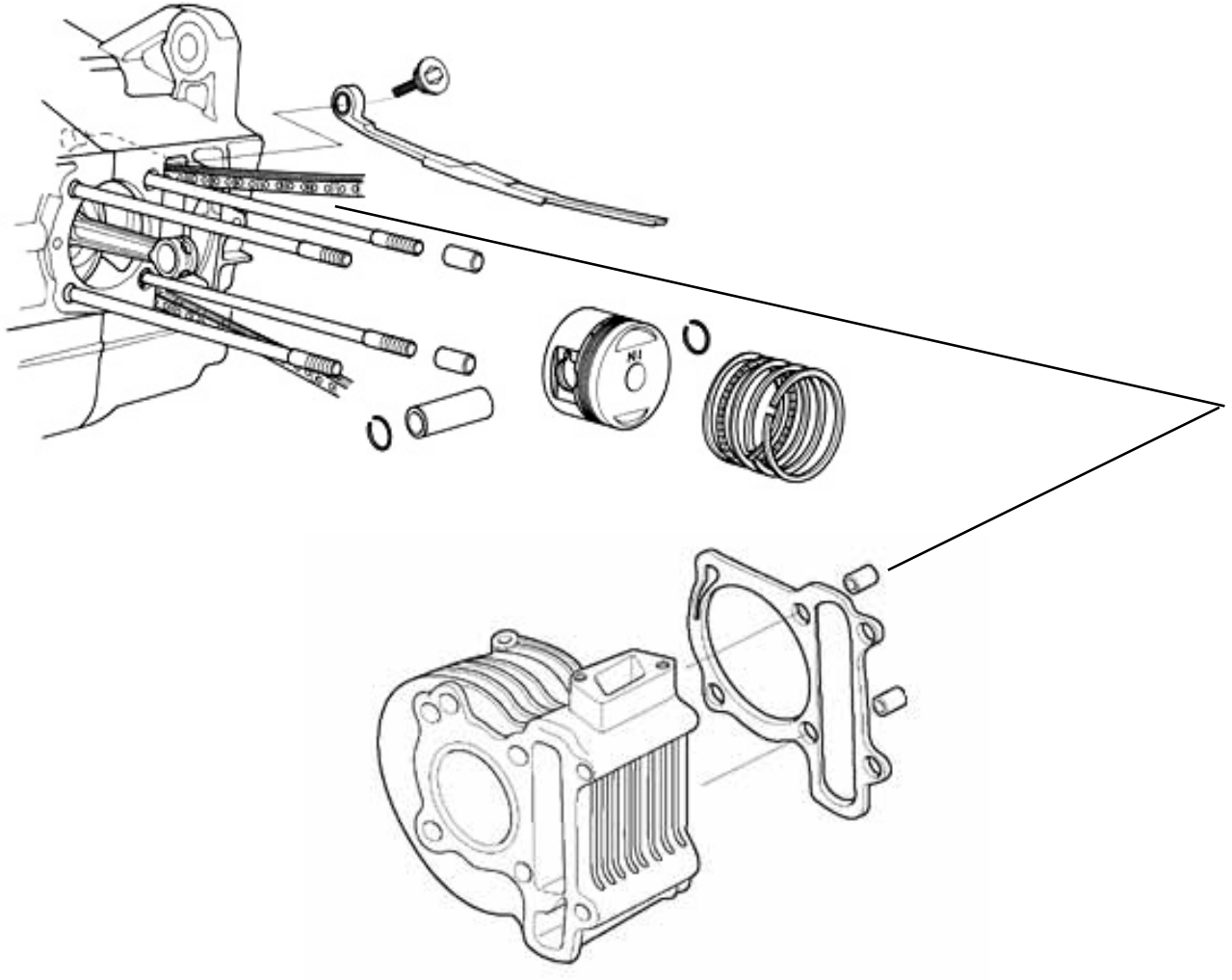
- Fill the clean engine oil into the operating parts of the cylinder head.
- Adjust the valve clearance.



- Remove oil from the cylinder head cover grooves and accurately assemble the gasket to the cover.
- Install the cylinder head cover bolts.
  TORQUE : 1.1kgf · m

- Install the shroud comp.
- Install the engine frame.

MEMO



10. CYLINDER / PISTON

SERVICE INFORMATION · 10-1
TROUBLESHOOTING · 10-1
CYLINDER · 10-2
PISTON · 10-3
PISTON / CYLINDER INSTALLATION · · · · · · · · · · · · · · · 10-5

SERVICE INFORMATION

GENERAL SAFETY

- Be careful not to damage the mating surfaces by using a screwdriver when disassembling the cylinder. Do not strike the cylinder too hard during disassembly, even with a rubber or plastic mallet, to prevent the possibility of damage to the cylinder pins.
- Take care not to damage the cylinder wall and piston
- Check parts after disassembling, and clean and dry with an air hose prior to taking measurements.

SPECIFICATIONS

Unit : mm

ITEM			STANDARD VALUE	SERVICE LIMIT
CYLINDER	INNER DIAMETER		39.000-39.010mm	39.04mm
	TAPER		-	0.05mm
	OUT-OF-ROUND		-	0.05mm
	HEAD CONTACT WARPAGE		-	0.05mm
PISTON, PISTON PIN, PISTON RING	PISTON SKIRT OUTER DIAMETER		38.970-38.980mm	38.92mm
	PISTON PIN HOLE INNER DIAMETER		13.008-13.012mm	13.04mm
	PISTON PIN OUTER DIAMETER		12.994-13.000mm	12.98mm
	PISTON TO PISTON PIN CLEARANCE		0.008-0.018mm	0.04mm
	PISTON RING TO GROOVE CLEARANCE	TOP	0.05-0.15mm	0.04mm
		SECOND	0.05-0.17mm	0.04mm
	PISTON RING JOINT GAP	OIL RING	0.1 - 0.6mm	0.8mm
CYLINDER TO PISTON CLEARANCE			0.020-0.040mm	0.08mm
CONNECTING ROD SMALL END INNER DIAMETER			13.013-13.028mm	13.05mm
GAP BETWEEN CONNECTING ROD SMALL END AND PISTON PIN			0.013-0.034mm	0.06mm

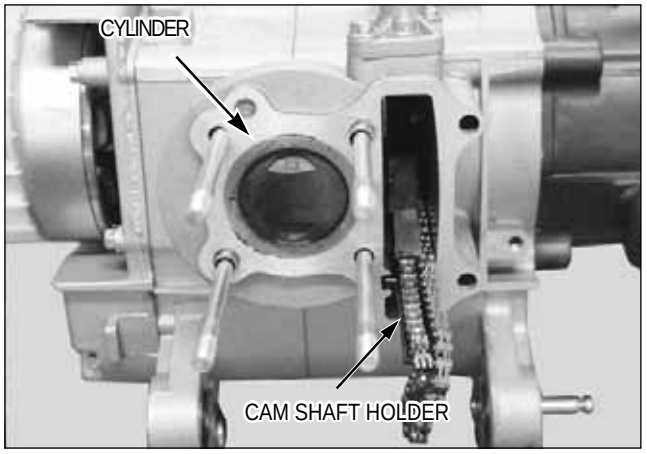
TROUBLESHOOTING

Compression pressure too low
- Piston worn
- Piston ring worn or damaged
- Cylinder worn

Emission of white gas from muffler
- Cylinder, piston, piston rings worn
- Bad adjustment of piston rings
- Piston, cylinder worn

Over heated
- Excessive carbon built up on top of piston

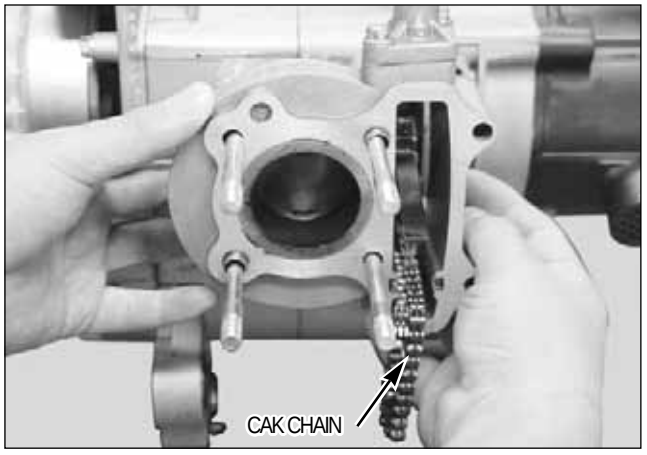
Abnormal engine noise
- Cylinder, piston worn
- Worn connecting rod small end bearing or piston pins
- Damaged piston rings
- Excessive carbon built up on top of piston



CYLINDER

REMOVAL

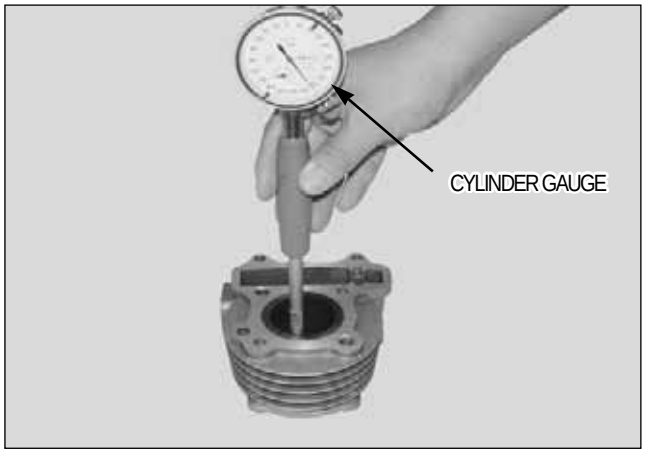
- Remove the engine from the engine.
- Remove the cylinder head cover.
- Remove the cam shaft holder
- Remove the cylinder head.
- Remove the cam chain guide from the cylinder.
- Remove the cylinder



- Remove the gasket and dowel pin.
- Remove any adhering gasket material from the cylinder/ head mating surface.

NOTE

• Take care not to damage the cylinder mating surface.



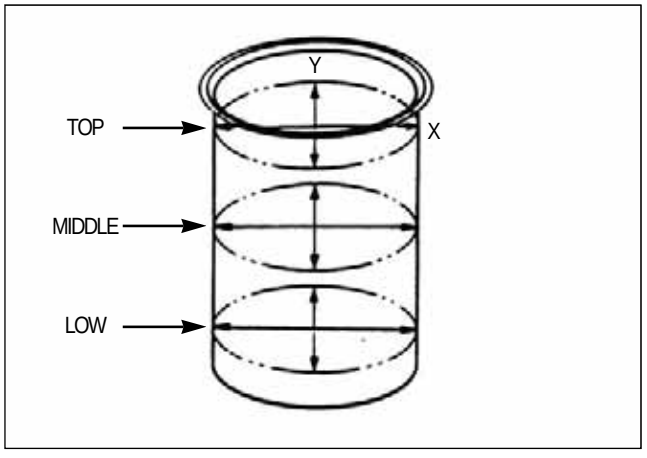
INSPECTION

- Measure and record the cylinder inner diameter at three levels in both an X and Y axis.
- Take the maximum reading to determine the cylinder wear.

SERVICE LIMIT : 39.04 MM

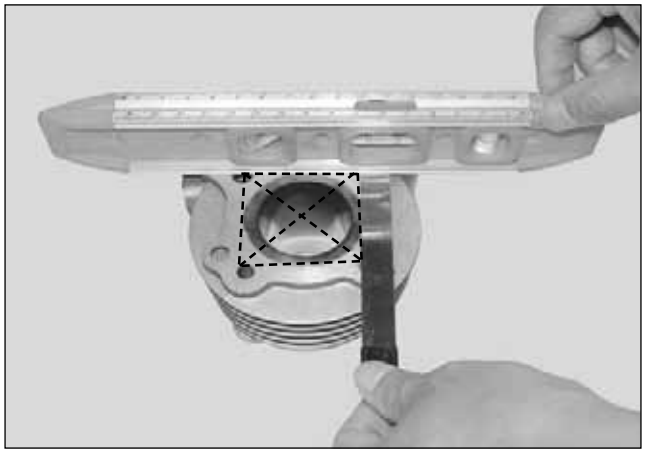
- Measure the piston outer diameter.
- Calculate the piston-to-cylinder clearance. Take the maximum reading to determine the clearance.

SERVICE LIMIT : 0.08 MM

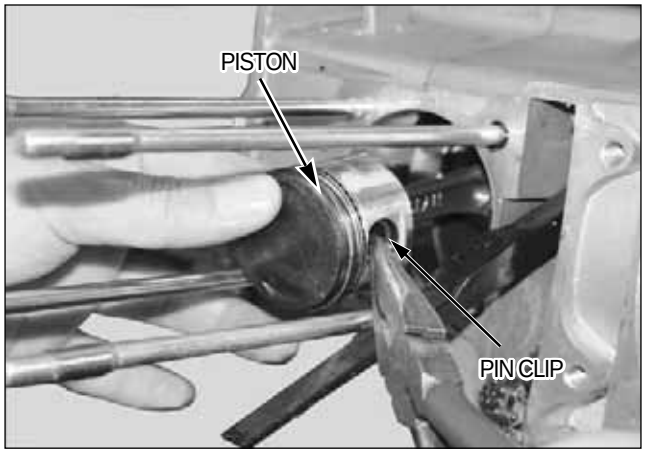


- Calculate the cylinder for out-of round at three levels in an X and Y axis. Take the maximum reading to determine the out-of-round.
- Calculate the cylinder for taper at three levels in X and Y axis. Take the maximum reading to determine the taper,
- If any of the cylinder measurements exceed the service limits, replace the cylinder.

SERVICE LIMIT: OUT-OF-ROUND :0.05MM
TAPER: 0.05MM



● Check the cylinder for warpage by placing a straight edge and feeler gauge across the stud holes. Replace the cylinder if the service limit is exceeded.
SERVICE LIMIT: 0.05MM



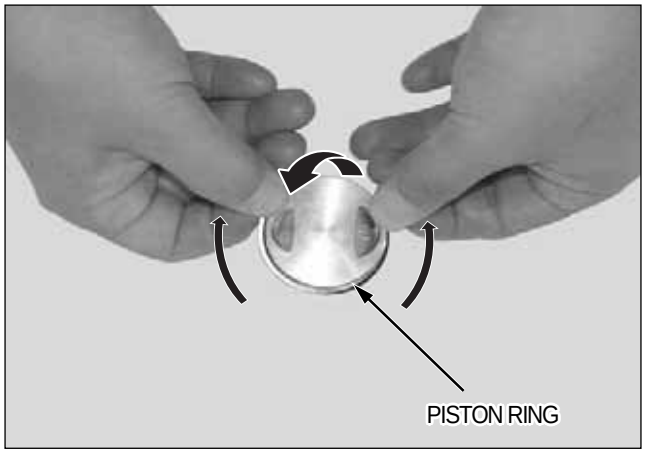
PISTON

REMOVAL

● Remove the piston clip.

NOTE

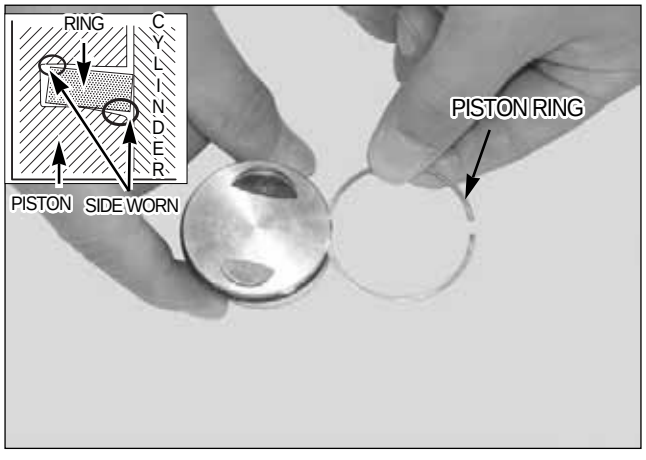
• Do not allow to drip the piston pin clip into the inside of crank case.



● After removing the piston pin, then remove the piston.
● Remove the piston ring.

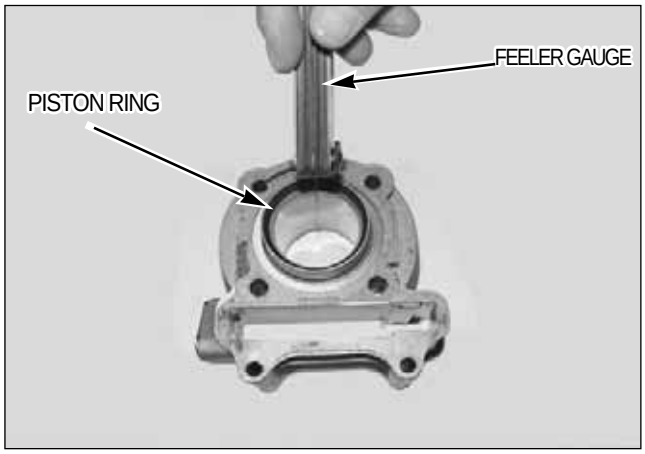
NOTE

• Do not damage to the piston by piston ring when removing.



● Check for the piston ring.
● Measure the clearance between the piston ring and piston grooves.
SERVICE LIMIT: TOP: 0.4MM
SECOND: 0.4MM

● Check whether the piston is worn or damaged.

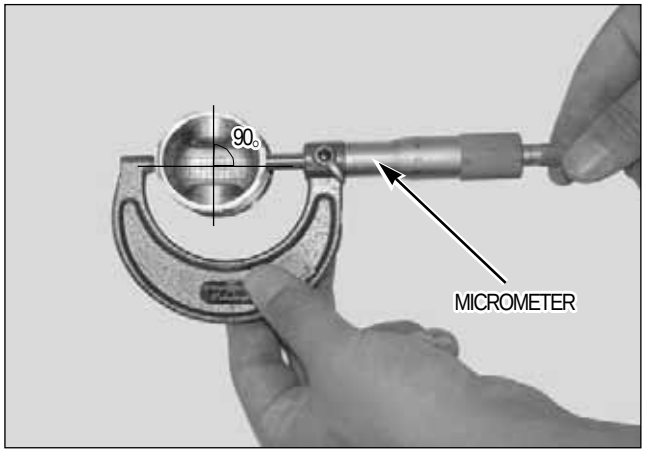


● Inset the piston ring into the inside of cylinder, check the clearance of piston ring.

NOTE

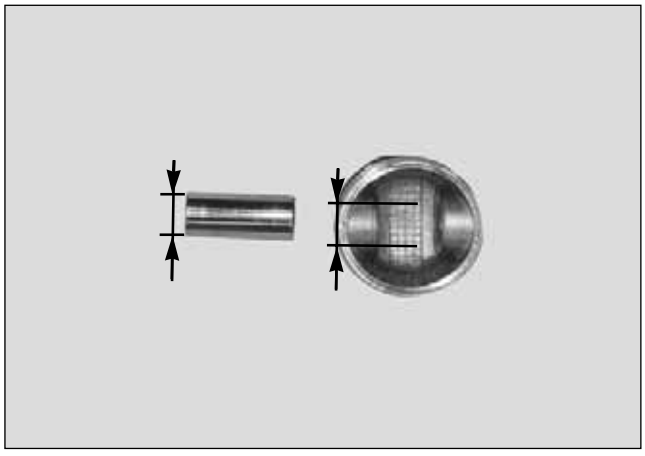
• Inset the piston ring in parallel by the head of piston.

SERVICE LIMIT: TOP/SECOND: 0.40MM
OIL RING (SIDE RAIL): 0.8 MM
TOOL: FEELER GAUGE



● Measure and record the piston outer 90° to the piston pin bore and the point specified(10 mm), near the bottom of the piston skirt.

SERVICE LIMIT: 38.92 MM

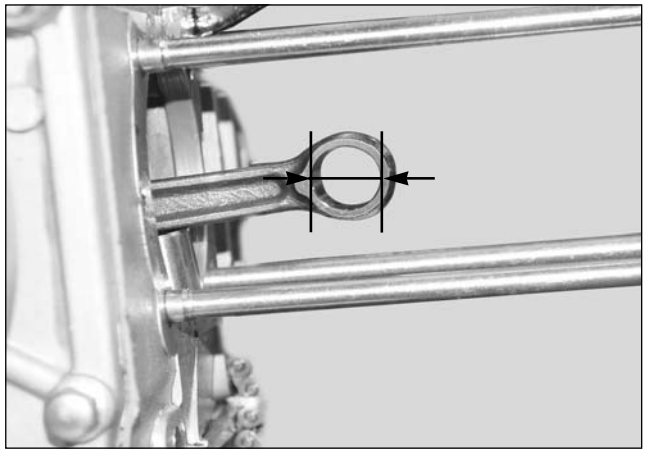


● Measure the piston pin hole inner diameter.
SERVICE LIMIT: 13.04 MM

● Measure the piston pin outer diameter.
SERVICE LIMIT: 12.98 MM

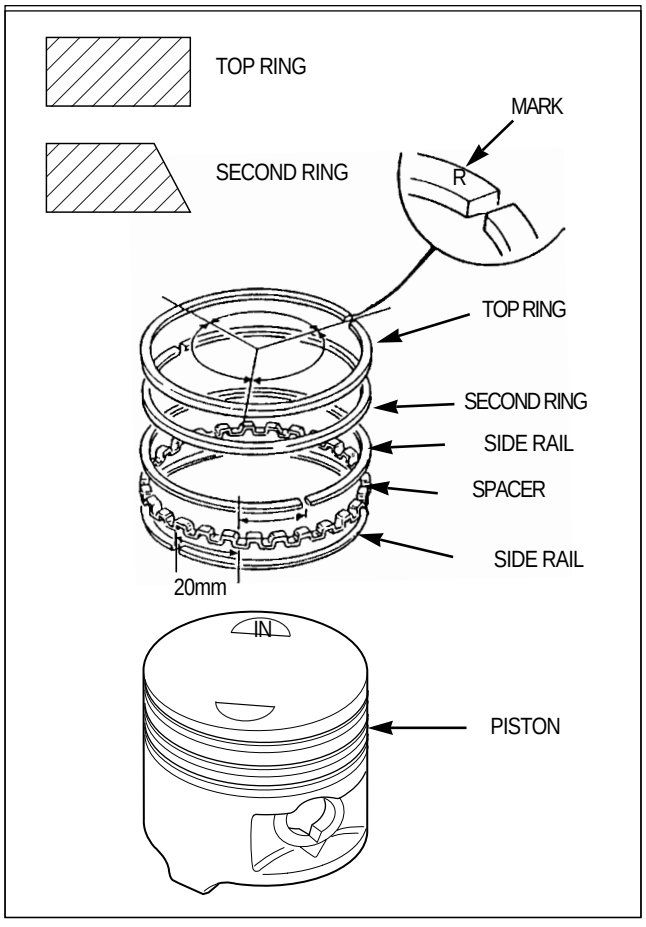
● Calculate the clearance between the piston and piston pin.
SERVICE LIMIT: 0.04 MM

● Replace with the set parts if worn or damaged.



● Measure the inner diameter of connecting rod small end.
SERVICE LIMIT: 13.05 MM

● Calculate the connecting rod small end top-to-piston pin clearance.
SERVICE LIMIT: 0.06MM



PISTON / CYLINDER INSTALLATION

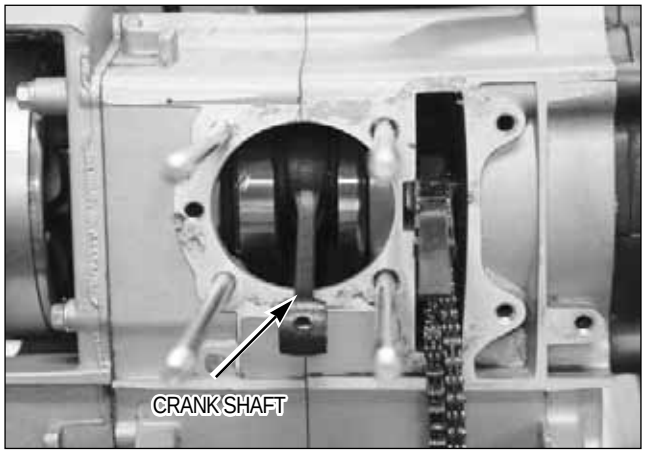
PISTON ASSEMBLY

- Clean the piston head, ring lands and skirts.

NOTE

- Be careful not to damage the piston and rings during assembly
- Carefully install the piston rings onto the piston with the markings facing up.
- Do not confuse the top and second rings.

- Space the ring end gaps 120 degrees apart.
- Do not accord the side rail of oil ring.
- After installation, the rings should rotate freely in the ring grooves.

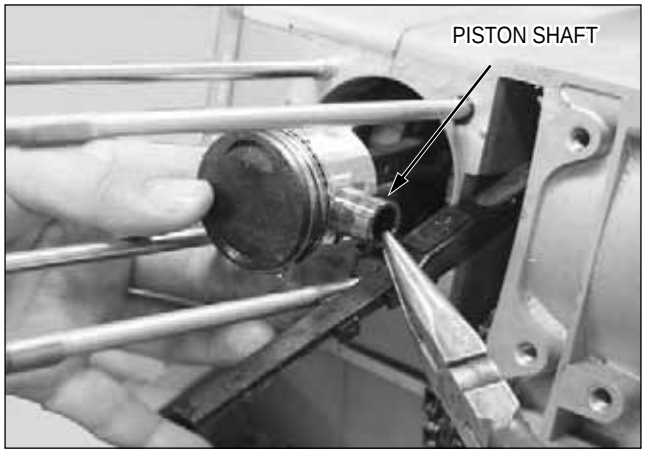


PISTON / CYLINDER

- Remove the gasket on the crank case surface.

NOTE

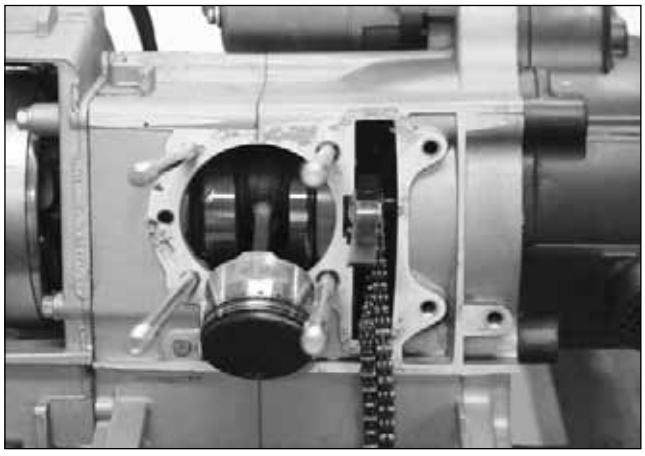
- Do not damage the contact place of gasket.
- Place a clean shop towel over the crankcase to prevent the clip from falling into the crankcase.



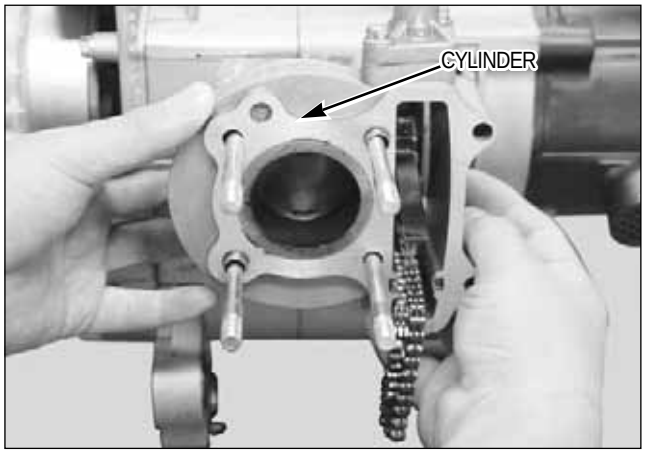
- Install the piston and piston pin into the connecting rod.
- Install the new piston pin clip pin.

NOTE

- ”IN” mark it does toward to intake side.
- Take care not to drop the piston pin clip into the crankcase.
- Do not align the clip’s end gap with the piston outcut.



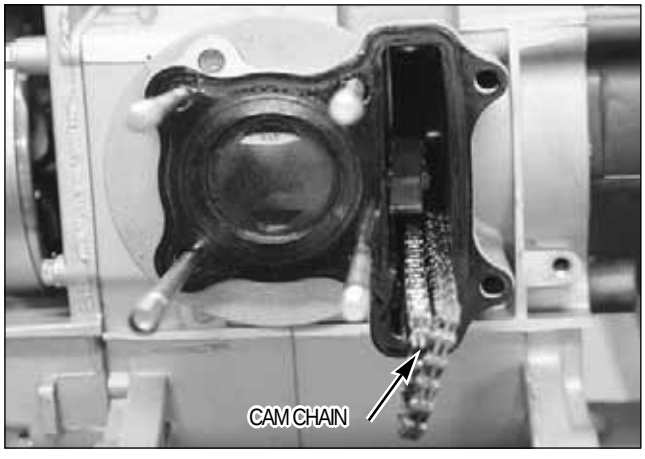
- Install the new gasket and dowel pins.



- Coat the cylinder wall with clean the engine oil and lubricate the piston rings and install the cylinder.

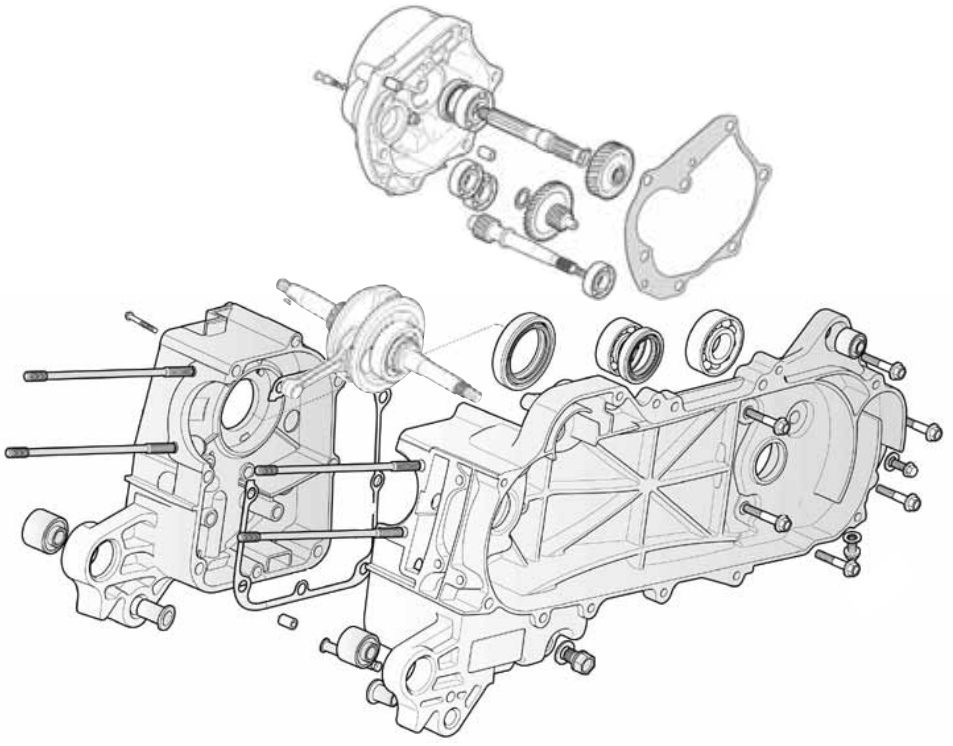
NOTE

- Be careful not to damage the piston rings.
- Be careful not to drop the cam chain into the crankcase.



- Install the lower part of the cam chain guide to the groove part of the crankcase and install the cam chain guide by aligning the projection part with the groove part of cylinder.
- Install the cylinder head.
- Install the cam shaft.
- Install the cylinder head cover.
- Install the engine into the frame.

MEMO



11. TRANSMISSION/CRANKSHAFT/CRANKCASE

SERVICE INFORMATION · · · · 11-1
TROUBLE SHOOTING · · · · · 11-2
TRANSMISSION · · · · · · · · 11-3
TRANSMISSION BEARING · · · 11-4
CRANKCASE REMOVAL · · · · 11-7
CRANK SHAFT REMOVAL · · · · 11-8
CRANK SHAFT INSTALLATION · · ·11-9
CRANK CASE INSTALLATION · · 11-10

SERVICE INFORMATION

GENERAL SAFETY

- This section describes how to remove the crank case and to maintain the transmission and the crankshaft.
- Service transmission without removing the engine from the vehicle. However, to prevent damage to the LH. Crank case, remove the engine and disassemble the rear brake prior to changing the LH. Crank case bearing
- Always use special tools to change the drive shaft. Fix the bearing inner race, and install the shaft
- The following parts must be removed prior to removing the crank case. Follow the removal procedure specified in each section.
  - Drain the engine oil
  - Remove the carburetor
  - Remove the engine
  - Remove the cylinder head, cylinder, piston
  - Remove the cooling fan, flywheel, RH. Crank case cover
  - Remove the LH. Crank case cover, drive face, driven pulley
  - Remove transmission
- When replacing the LH crank case, follow the below procedure specified in each section.
  - Disassemble the transmission (⇨SECTION 11)

SPECIFICATIONS

단위 : mm

ITEM			STANDARD VALUE	SERVICE LIMIT
CRANK SHAFT	CONNECTING ROD		0.1~0.3mm	0.5mm
	CONNECTING ROD BIG END		0.1~0.4mm	0.6mm
	CRANK SHAFT SHAKING	Right	-	0.1mm
		Left	-	0.1mm

TRANSMISSION OIL

OIL CAPACITY	0.12L(Full capacity) 0.10L(After oil change)
RECOMMENDED OIL	DAELIM genuine mission oil or SAE 80W/90

TORQUE

CRANK CASE BOLT	1.1kgf · m

TOOL

- UNIVERSAL BEARING PULLER
- CRANK SHAFT ASSEMBLER COLLAR SHAFT
- DRIVE HANDLE
- DRIVE OUTER
- BEARING REMOVER SET

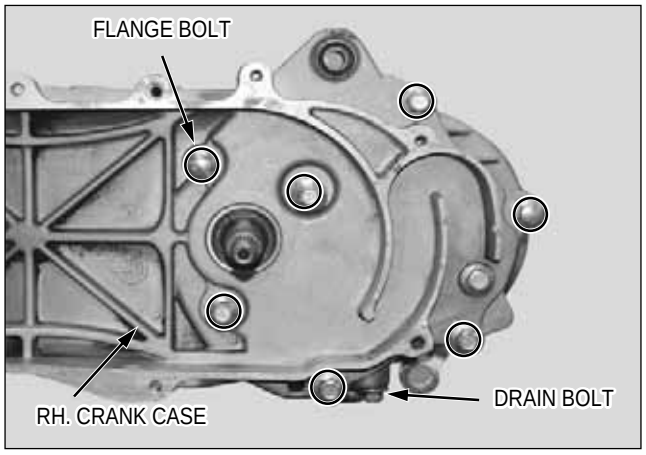
TROUBLESHOOTING

Engine Noise
- Connecting rod big and small ends loose.
- Crank pin bearing loose.

Engine started but unable to move out
- Transmission damage.
- Transmission seized.

Noise during operation
- Gear worn, overheated, cracked.
- Bearing worn.

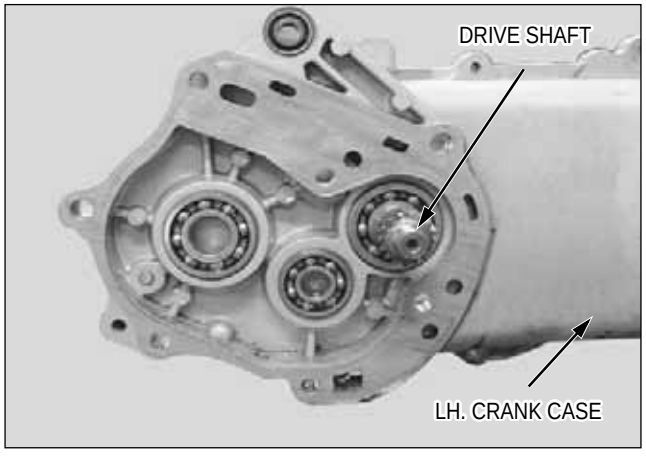
Oil leaks
- Excessive oil level.
- Oil seal worn, damaged.



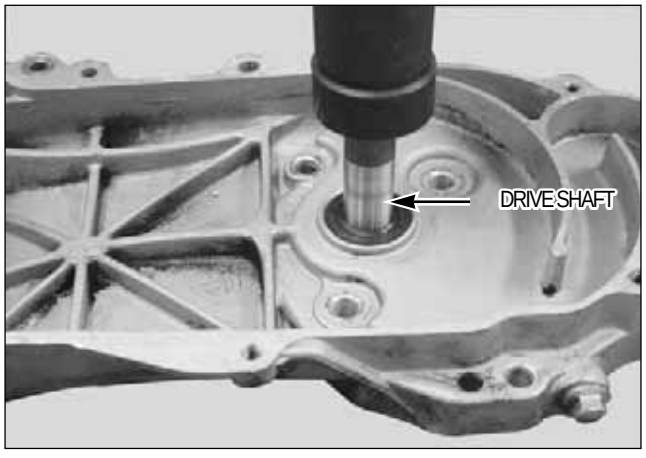
TRANSMISSION

DISASSEMBLY

- Loosen the drain bolt, drain the mission oil.
- Remove the LH. crankcase cover.
- Remove the driven pulley, drive face.
- Remove the muffler.
- Remove the rear wheel.
- Loosen the bolts assembled at LH. Crank case and remove the transmission cover.



- Remove the gasket and dowel pin in LH. Crank case.

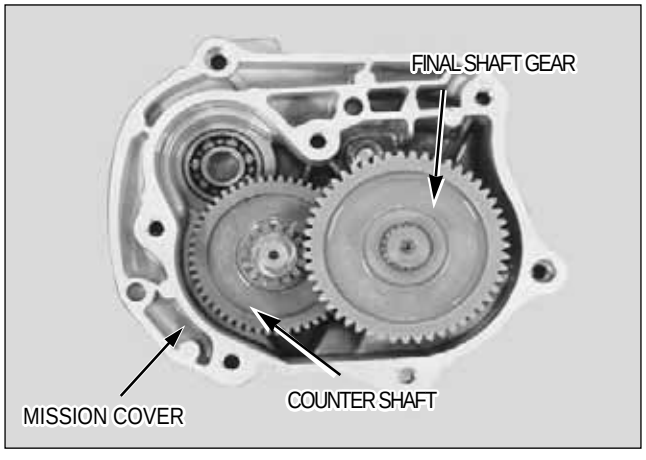


- Remove the drive shaft from the transmission cover by using a hydraulic press.

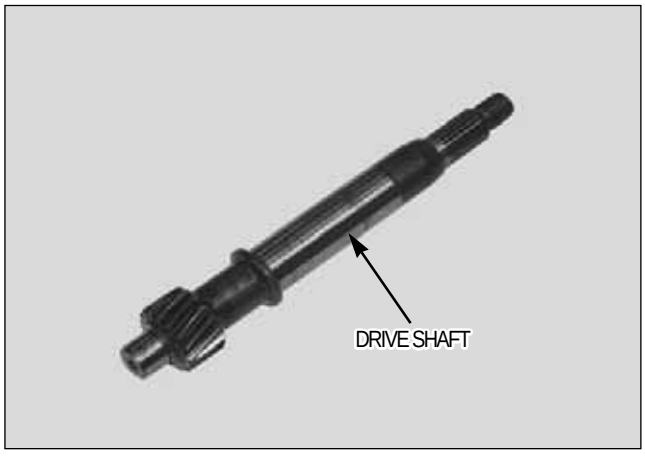
NOTE

• Take precautions not to damage the cover joints.

- Remove the oil seal of drive shaft.

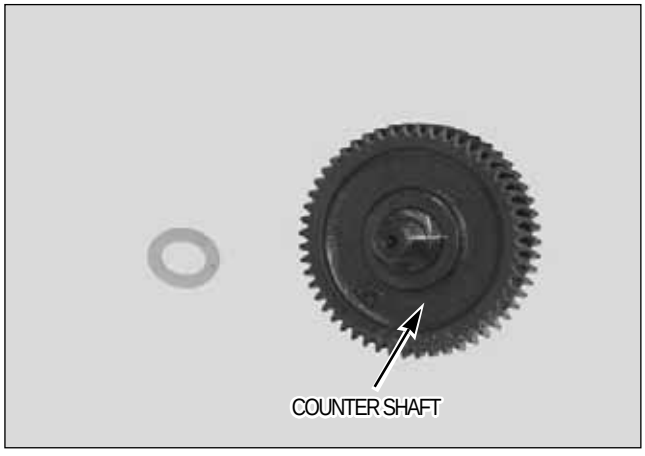


- Remove the final shaft and counter shaft comp installed at misson cover.

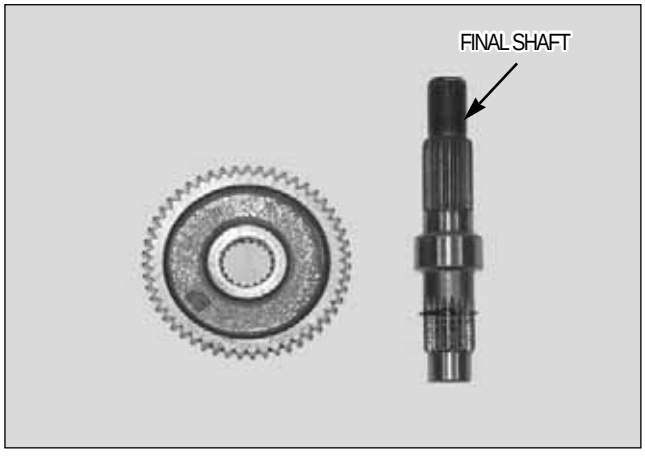


INSPECTION

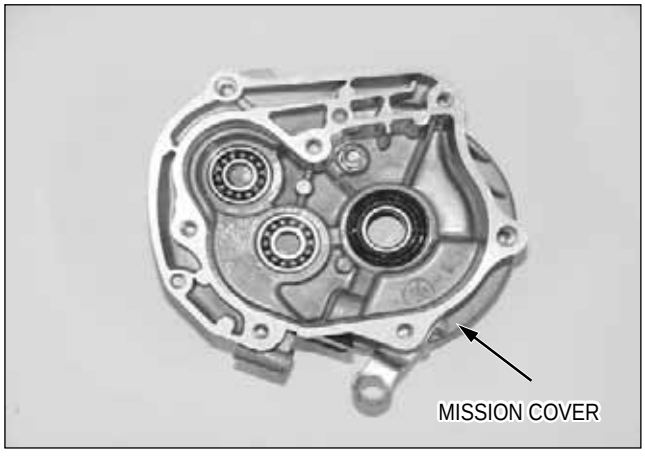
- Check the drive shaft for wear or damage.



- Check the final shaft and gear for wear or damage.



- Check the final shaft and the worn or damage of gears.

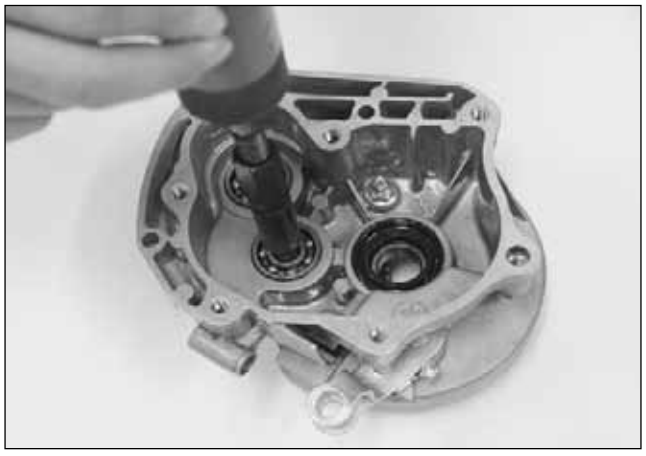


TRANSMISSION BEARING

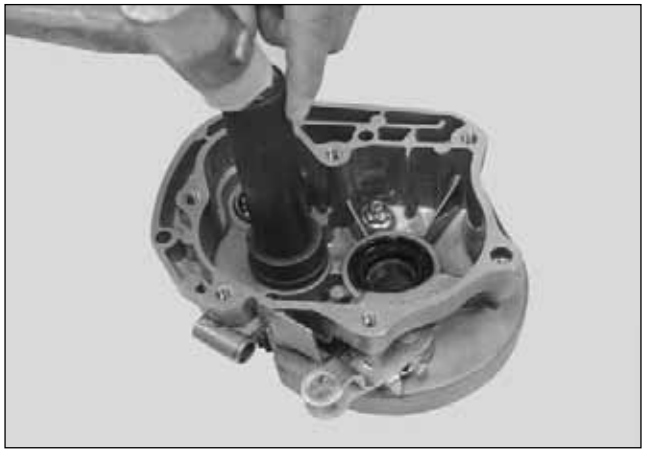
- Disassemble crank shaft and transmission.

INSPECTION

- Check whether transmission bearing smoothly works or not by turning the inner race of bearing by fingers.
- Check whether the outer race is correctly put pressure into crank case.
- If the looseness degree is excessive over and the put pressure of case is loose, diassemble and replac with the new one.

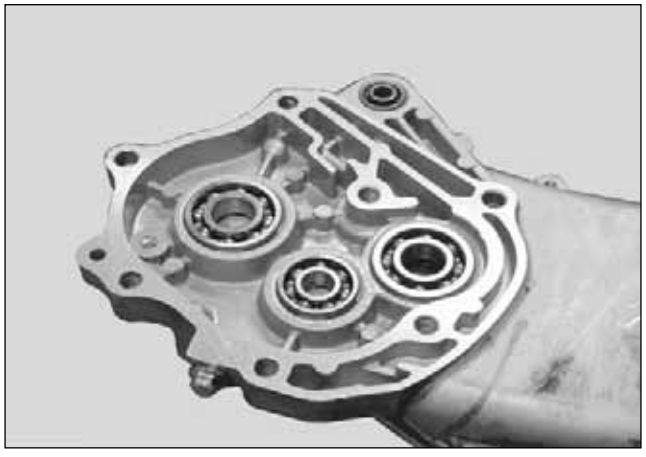


- Replace the bearings if necessary.
- Press the bearing to the case with special tool.
  TOOL: BEARING REMOVER SET

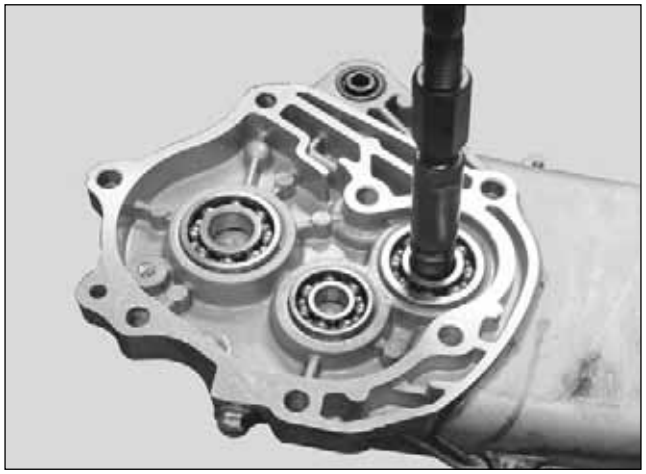


ASSEMBLY

- Install the drive shaft on the transmission cover.
- Install a new drive shaft oil seal.
  TOOL: CRANK ASSEMBLY SHAFT
  CRANK ASSEMBLY COLLAR

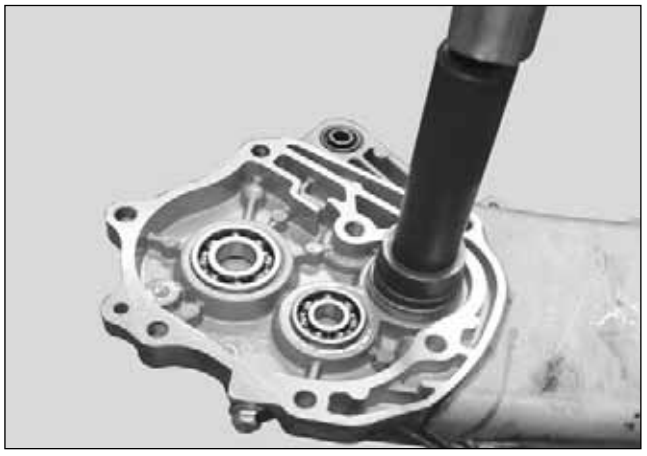


- Check whether bearing, oil seal in LH. Crank case are worn or damaged.

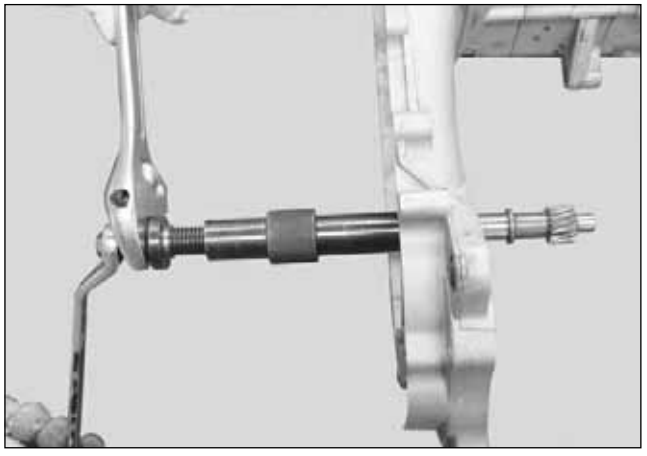


REPLACEMENT

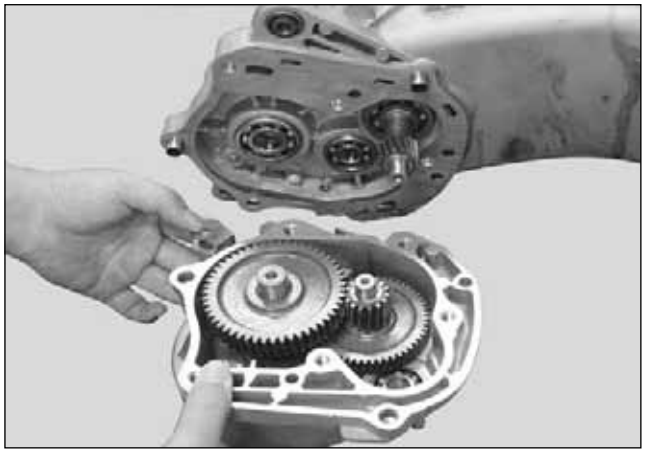
TOOL : BEARING REMOVER SET



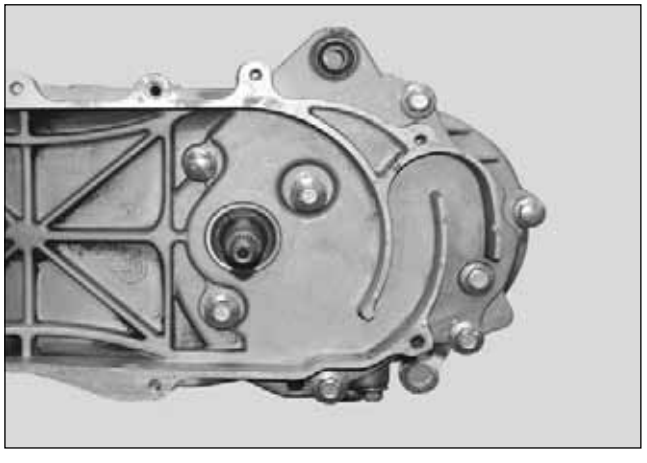
- Apply clean engine oil to the new bearing and insert by pressure to crank case.
  TOOL : DRIVER HANDLE, DRIVER OUTER
- Assemble the new final shaft oil seal.



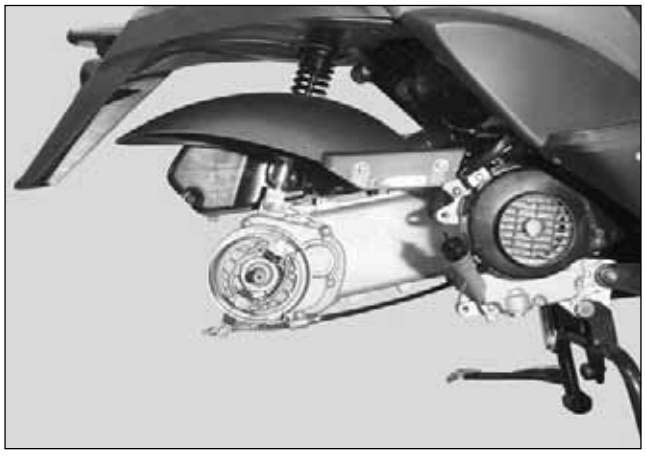
- Assemble drive shaft to LH. Crank case.
- Assemble the new drive shaft oil seal.
  TOOL : DRIVER HANDLE



- Assemble final shaft and counter shaft to crank case mission cover.
- Assemble the new gasket and dowel pin.

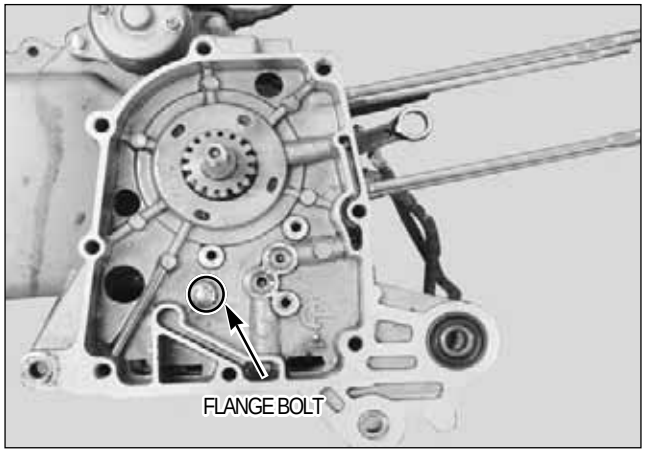


- Install transmission cover by flange bolt.
  - Rear wheel.
  - Muffler
  - Continuously variable transmission
  - LH. crank case cover
- Loosen the oil check bolt, fill the transmission oil.
  OIL CAPACITY : 0.12L

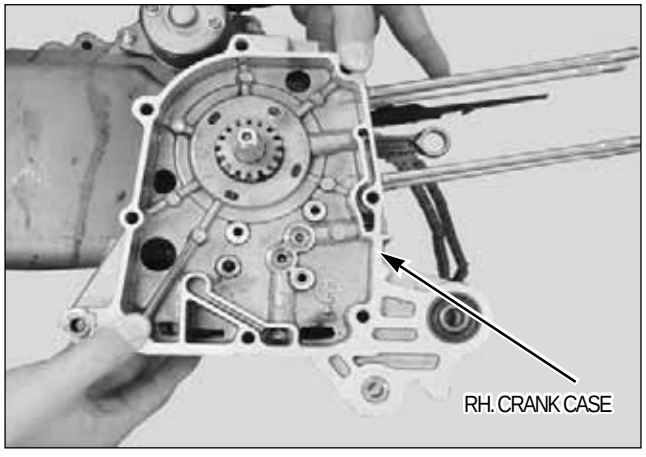


CRANK CASE REMOVAL

- Remove the engine from the frame.
- Remove the RH./LH. crank case cover.
- Remove the parts to disassemble crankcase.



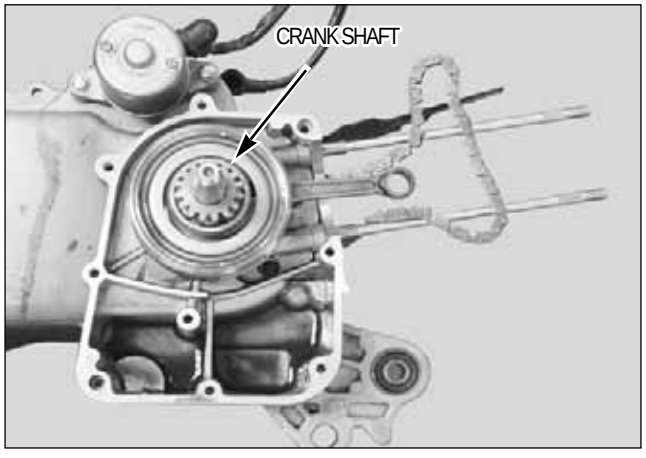
- Loosen the 1 flange bolt from the RH. crank case.



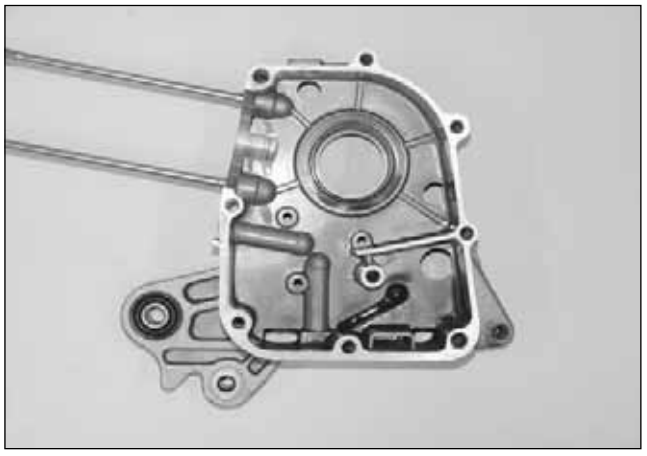
- Face the LH. crankcase downward, and remove the RH. crankase from the LH. crankcase while tapping a new places on the LH. crankcase with a plastic hammer.

NOTE

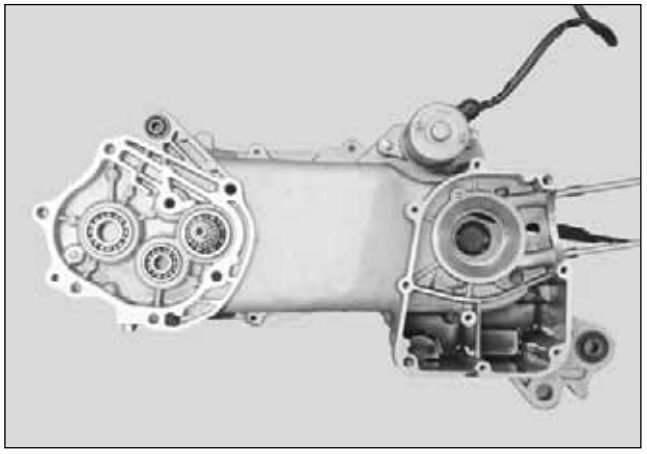
• Be careful not to distort the mating surface of the crank case during removal.



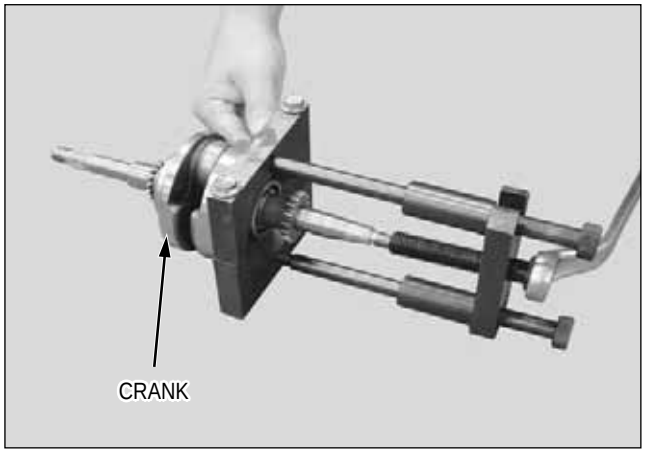
- Remove the dowel pin and gasket.
- Remove the crankshaft.



- Check RH. Crank case.



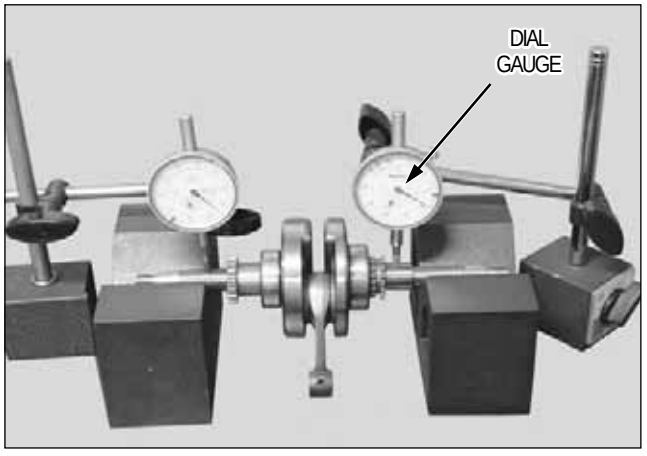
- Check LH. Crank case.



CRANK SHAFT REMOVAL

- If the bearing is left on the crankshaft, use a bearing puller to remove it.

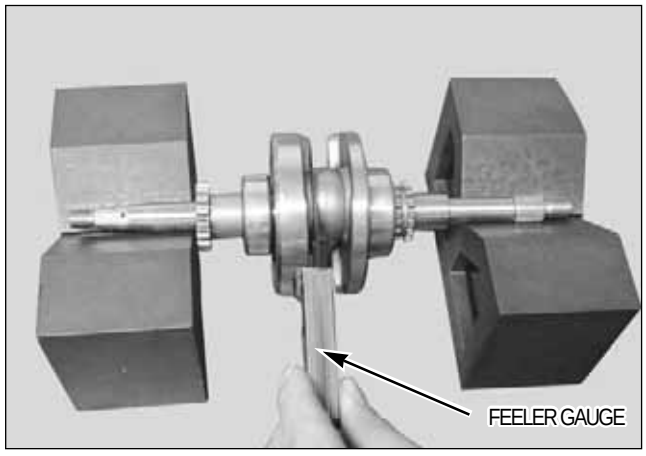
TOOL: UNIVERSAL BERING PULLER



INSPECTION

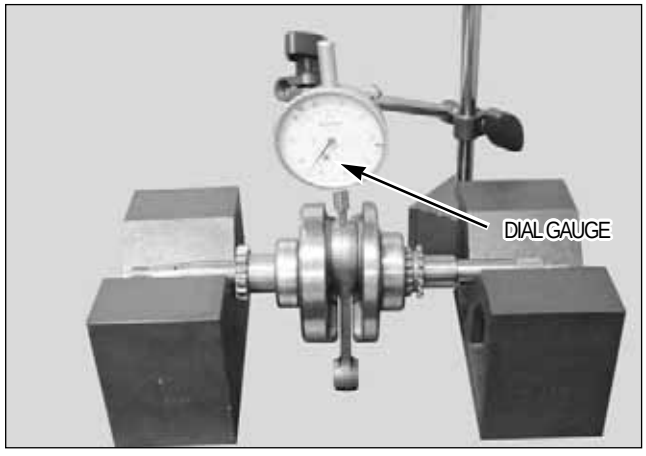
- Place the crankshaft on a stand or V-block, and measure the crankshaft runout using dial gauge.

SERVICE LIMIT: RIGHT: 0.1MM
LEFT: 0.1 MM



- Measure the side clearance by inserting the feeler gauge between the crankshaft and connecting rod big ends.

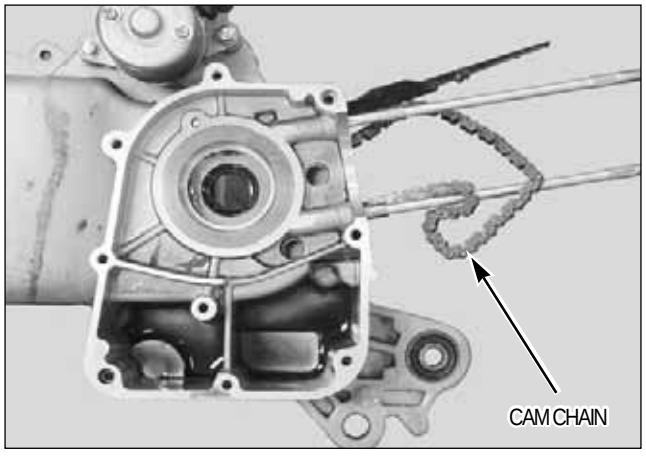
TOOL: FEELER GAUGE
SERVICE LIMIT: 0.5MM



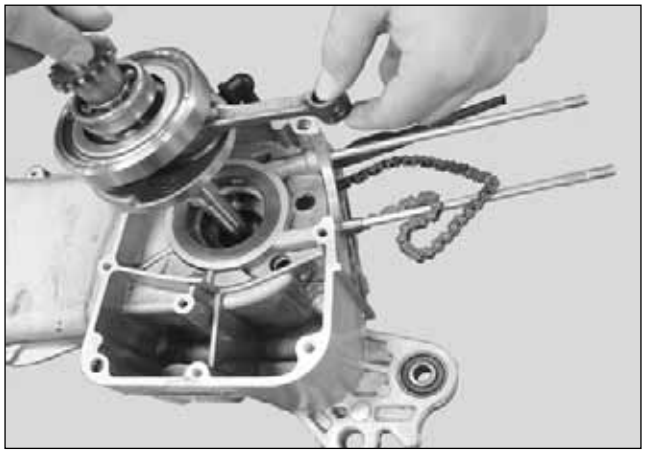
- Measure the connecting rod radial clearance in both X and Y directions.

SERVICE LIMIT: 0.6MM

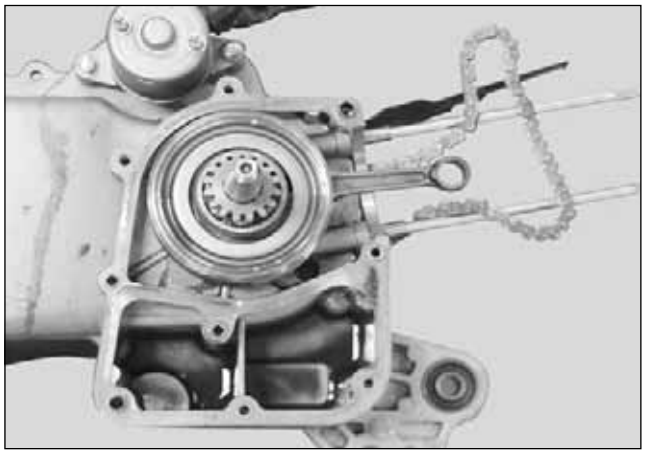
CRANK SHAFT INSTALLATION



- Put the LH. crank case toward the downward, hang the cam chain into the inside crankcase.

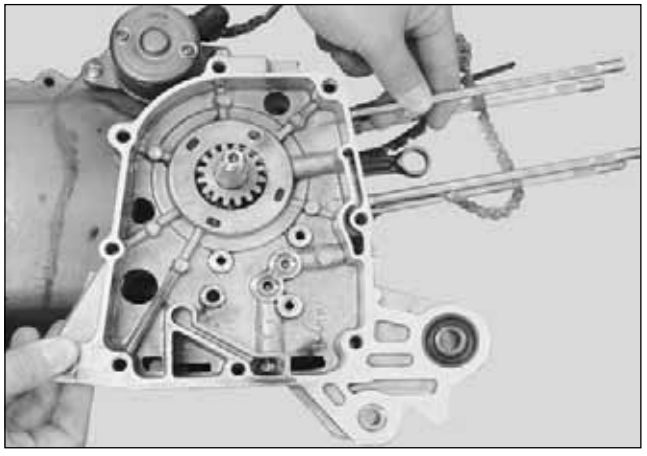


- Insert the crankshaft and install the cam chain into the timing sprocket.



CRANK CASE INSTALLATION

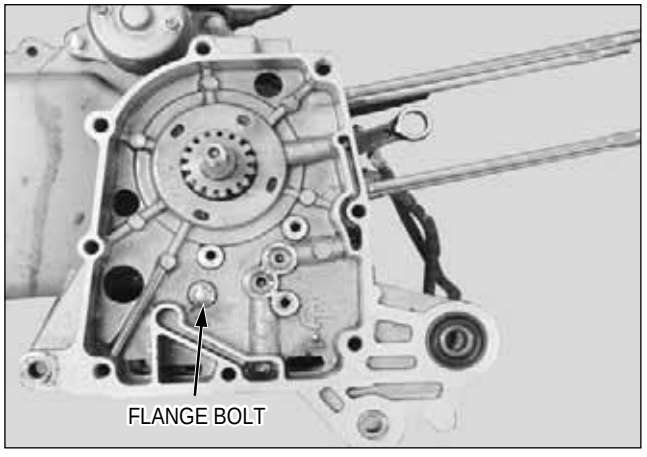
- Install the dowel pins and a new gasket.



- Pulling the cam chain and check to see if the crankshaft installed correctly.
- Install the RH. Crankcase to the LH. crank case.

NOTE

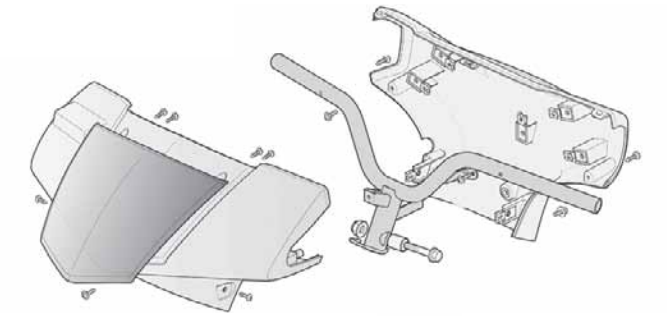
- Make sure that the gasket is completely attached without any clearance.

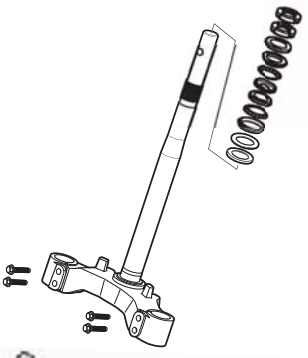


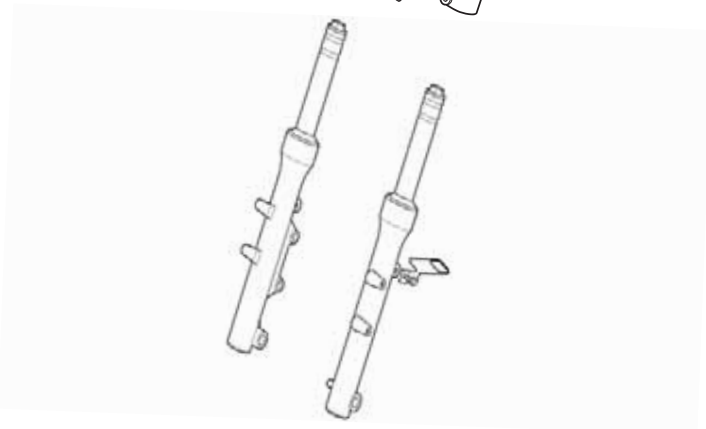
- Assemble one RH. Crank case flange bolt.

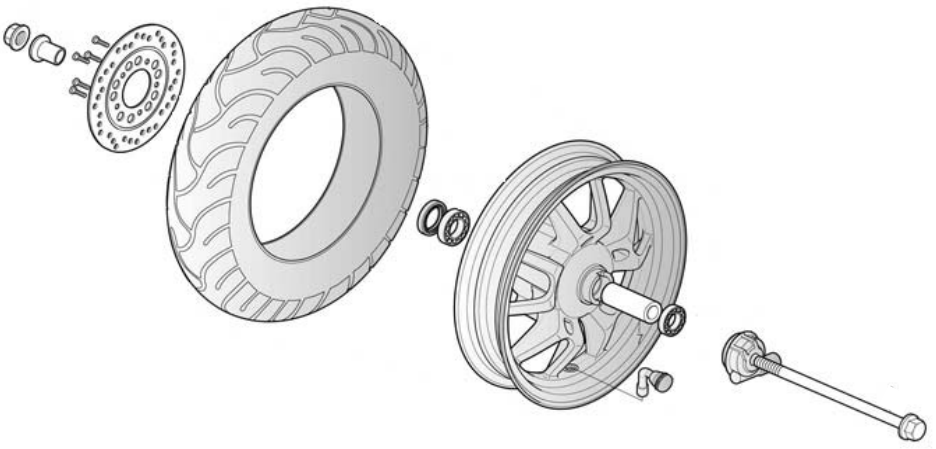
- Regarding the installing the engine assy, refer to the manual.
- Install the engine to the frame(-> section 6).

MEMO









12. FR. WHEEL / FR. BRAKE / FR. FORK / STEERING STEM

SERVICE INFORMATION · · · 12-1
TROUBLE SHOOTING · · · 12-2
STEERING HANDLE · · · · · 12-3
FRONT WHEEL REMOVAL · · 12-4
FRONT WHEEL BEARING · · · 12-5
SPEEDOMETER GEAR BOX · 12-6
FRONT WHEEL ASSEMBLY · · 12-7
FRONT BRAKE · · · · · · 12-7
BRAKE FLUID REPLACEMENT · 12-10
FRONT CALIPER · · · · 12-12
FRONT FORK · · · · · · 12-15
STEERING STEM · · · · 12-20

SERVICE INFORMATION

GENERAL SAFETY

CAUTION

- Keep oil or brake fluid off the brake disk and pad because the contaminated brake disk and pad reduces the braking performance. If contaminated, replace the pad with a new one, and clean the disk
- Use special tire levers and rim protectors to remove or assemble tires to protect the rim from being damaged
- Place a jack underneath the engine to support the 2-wheeled vehicle.

SPECIFICATIONS

ITEM		STANDARD VALUE	SERVICE LIMIT
AXLE SHAFT RUN OUT		-	0.2mm
FRONT WHEEL RIM RUN OUT	RADICAL	-	2.0mm
	AXIAL	-	2.0mm
FRONT CUSHION SPRING FREE LENGTH		232mm	185mm
BRAKE DISK THICKNESS		4.0mm	3.5mm
MASTER CYLINDER INNER DIAMETER		12.700~12.727mm	12.744mm
MASTER CYLINDER PISTON OUTER DIAMETER		12.623~12.650mm	12.606mm
BRAKE CALIPER PISTON OR DIAMETER		25.000~25.033mm	24.889mm
BRAKE CALIPER CYLINDER INNER DIAMETER		24.914~24.935mm	25.043mm

TORQUE VALUES

STEERING STEM NUT	7.0kgf · m
STEERING TOP CON RACE	0.25kgf · m
FRONT CUSHION BOLT	2.25kgf · m
FRONT AXLE NUT	6.0kgf · m
BRAKE CALIPER BOLT	3.0kgf · m

TROUBLESHOOTING

Hard steering

- Steering bearing adjustment nut too tight.
- Faulty steering stem bearings.
- Damaged steering stem bearings.
- Insufficient tire pressure.

Steer to one side or does not track straight

- Bent fork.
- Bent front axle.
- Bent frame.
- Worn or damaged tire.
- Worn wheel bearing.

Front wheel wobbling

- Rim deformed.
- Bad wheel bearing.

Wheel turning heavy

- Bad wheel bearing.

Weak Front suspension

- Weak spring.

Front cushion noise

- Looseness of front cushion assembled position.

Bad working brake

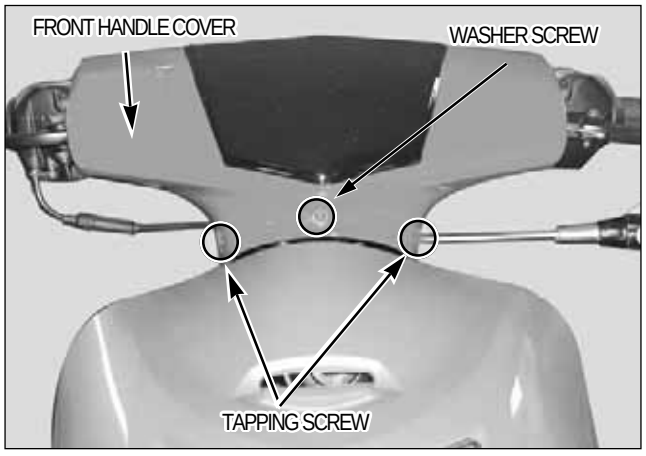
- Mixed air in brake system
- Getting damp to brake fluid
- Contaminated brake pad, disk
- Worn master cylinder piston seal
- Worn brake pad
- Worn caliper piston seal
- Contamination inside of caliper
- Bad contact of the side of caliper slide
- Worn brake pad, disk
- Insufficiency of brake fluid
- The channel of brake fluid is blocked
- Bent disk or deformed
- Seized caliper piston, worn
- Seized master cylinder piston, worn
- Worn disk
- Contamination inside master cylinder
- Bent brake lever

Brake lever not turned back to the original position

- Blocked in brake system
- Seized caliper piston
- Bad contact of caliper slide side
- Blocked in the channel of brake fluid
- Worn caliper piston seal
- Seized master cylinder piston, worn
- Brake lever power

Braking power lessens

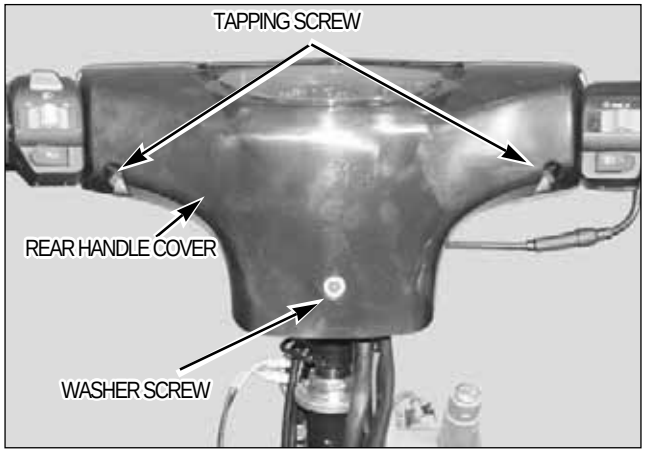
- Contamination of brake pad, disk
- Wrong wheel alignement
- Worn brake pad, disk
- Bent disk, deformed
- Bad contact of the side of caliper slide
- Contamination due to dirt in oil pressure system



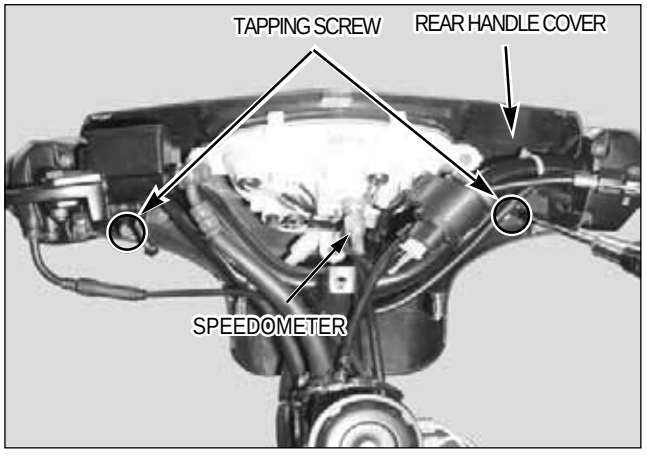
STEERING HANDLE

REMOVAL

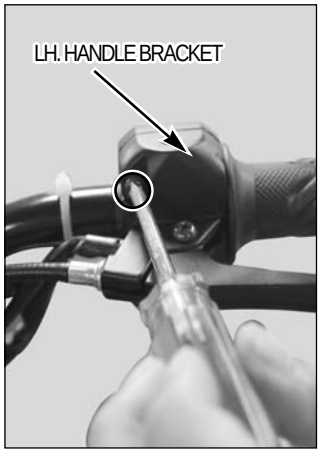
- Remove the front handle cover 1 washer screw and 3 tapping screws.

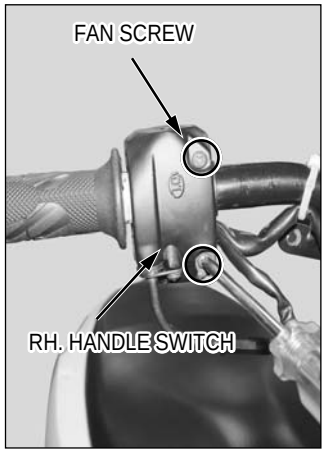


- Remove Remove 2 tapping screws assembled at front handle cover.

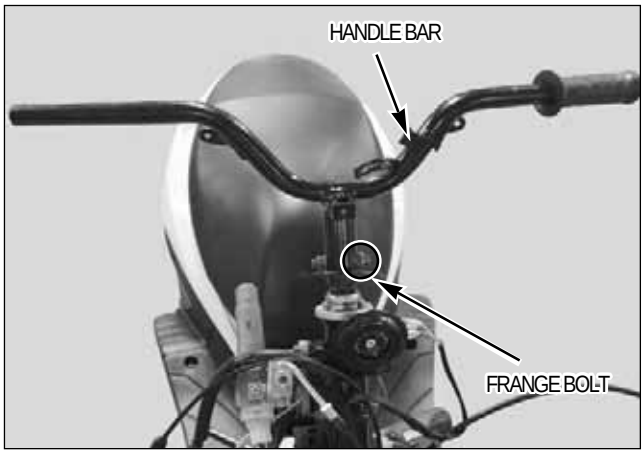


- Remove Remove the front handle cover from the handle bar.
- Remove the speedometer cable from the speedometer.
- Remove 2 tapping screws, 1 washer screw securing handle bar and remove the rear handle cover.

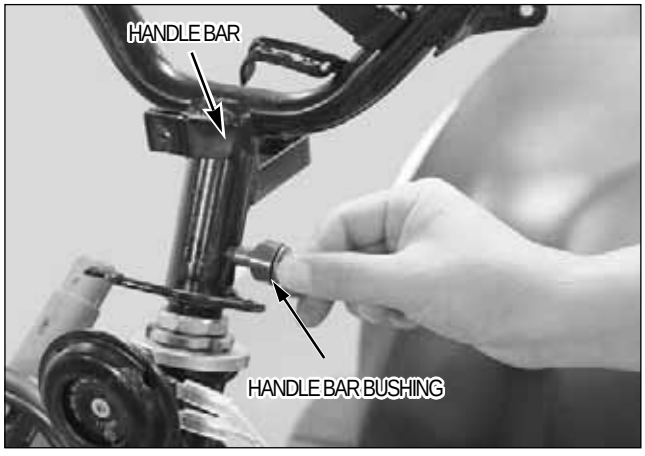




- Loosen the master cylinder holder bolt.
- Remove the master cylinder.
- Loosen the screw securing the throttle bracket and remove it.
- Loosen the bolt securing LH. handle bracket and remove it.
- Loosen the front / rear brake switch and remove it.



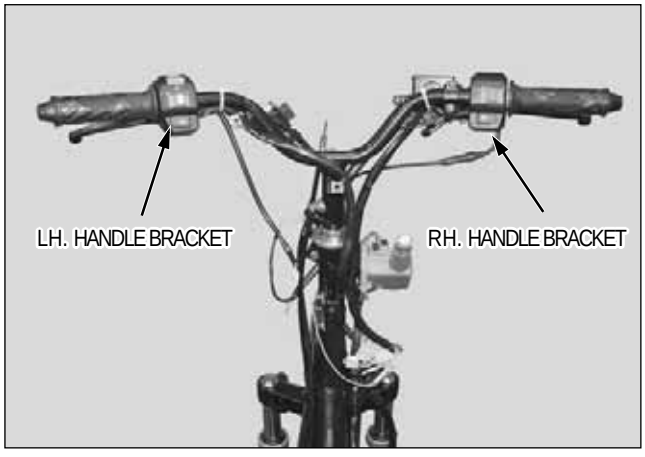
- Disconnect the throttle cable from the throttle grip and remove the throttle grip.
- Loosen the hex flange bolt securing handle bar and remove the handle bar.



INSTALLATION

- Install the handle bar to the steering stem.
- Assemble handle bar bushing(setting collar) fit to the home.
- Insert the hex flange bolt and tighten the locknut..

TORQUE VALUE : 4.5kgf · m

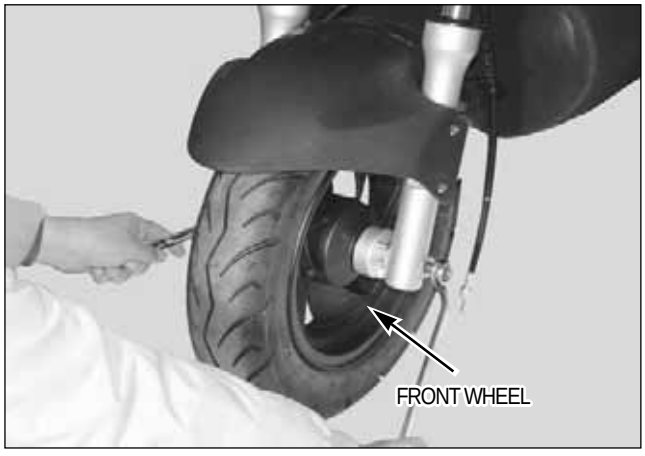


- Apply the grease to the throttle cable and install the throttle bracket.
- Install the front brake master cylinder.
- Install the LH. handle bracket.

NOTE

• Adjust the throttle grip free play to 2-6mm.

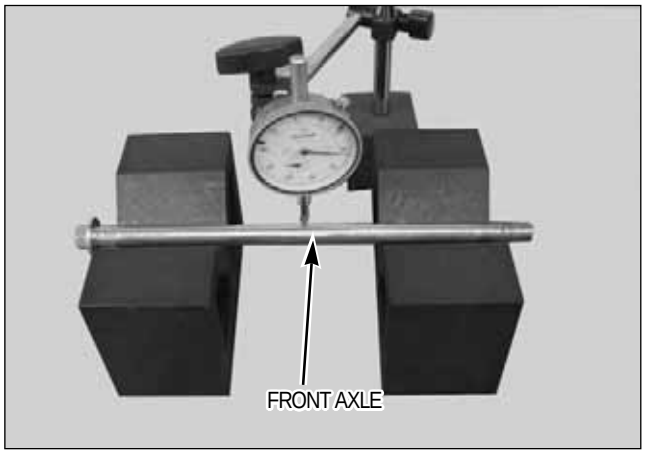
- Install in the reverse order of removal.



FRONT WHEEL

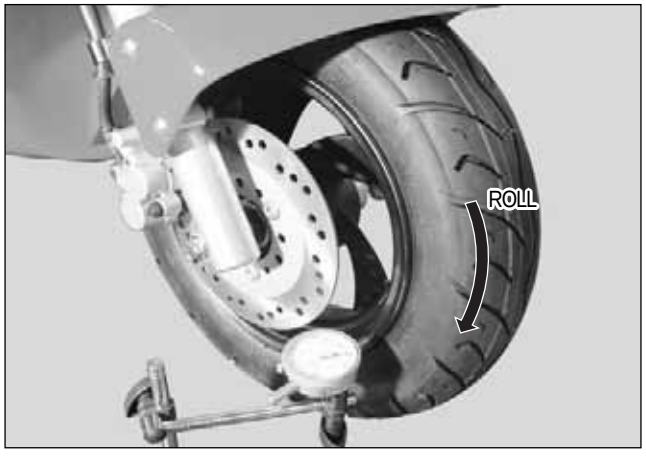
REMOVAL

- Support the vehicle securely under the engine to raise the front wheel.
- Remove the speedometer cable.
- Loosen the axle nut and remove the wheel.



INSPECTION

- Check the front axle for deflection. Place the front axle on a V-block, and measure deflection with a dial gauge.
  SERVICE LIMIT: 0.2 MM

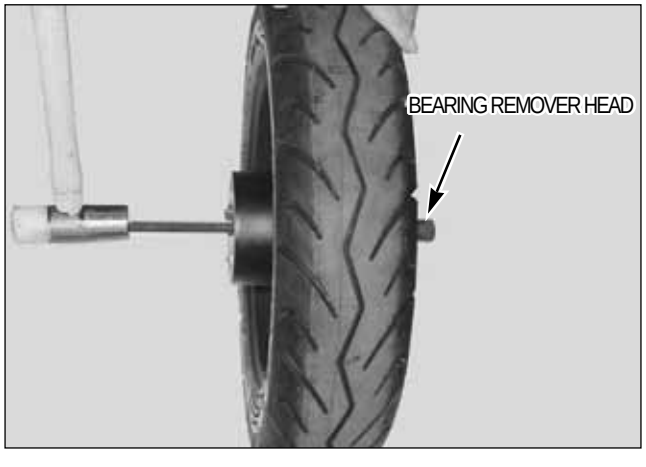


- Place the front wheel on an inspection stand. Slowly turn the wheel, and check the rim for wobbles with a dial gauge.
  SERVICE LIMIT: RADIAL 2.0MM
  AXIAL 2.0 MM

FRONT WHEEL BEARING

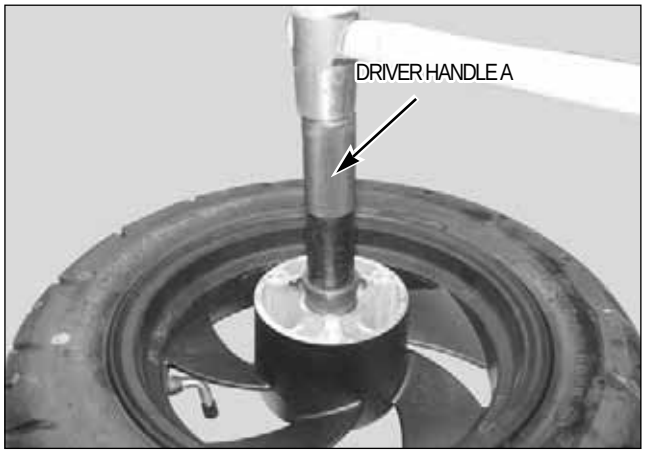
INSPECTION

- Turn the inner race of each bearing with finger. Bearing should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the hub. If the bearing is worn, replace the new one.



REMOVAL

- Install the bearing remover head and the remover shaft on the wheel and remove the bearing and distance collar.
  TOOL: BEARING REMOVER HEAD
  BEARING REMOVER



ASSEMBLY

- Apply sufficient amount of grease to the bearing.
- Insert the right bearing with its seal surface facing outside.
- Upon assembling the distance collar, insert the left bearing with its seal surface facing outside.

TOOL: DRIVER HANDLE A
OUTER DRIVER

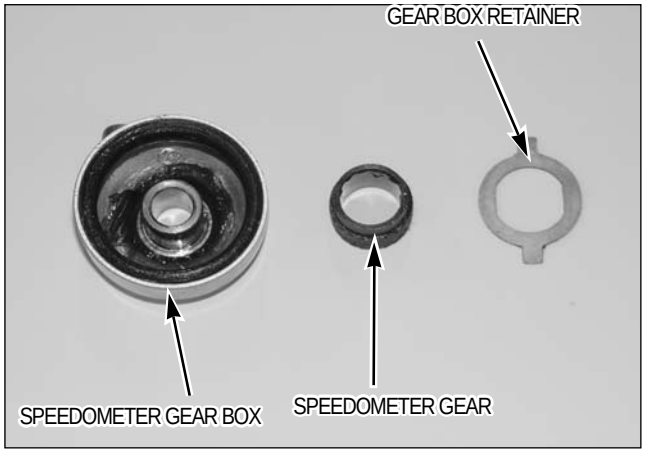
NOTE

• Do not tilt the bearing. Insert accurately.

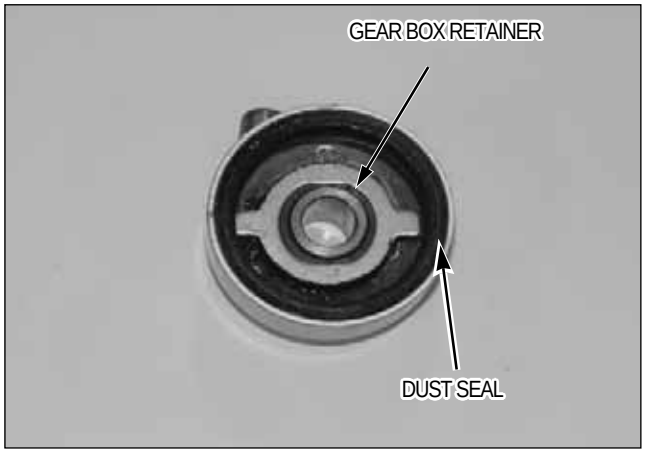
SPEEDOMETER GEAR BOX

INSPECTION

- Remove the speedometer gear box from the front wheel.
- Remove the speedometer gear from the speedometer gear box

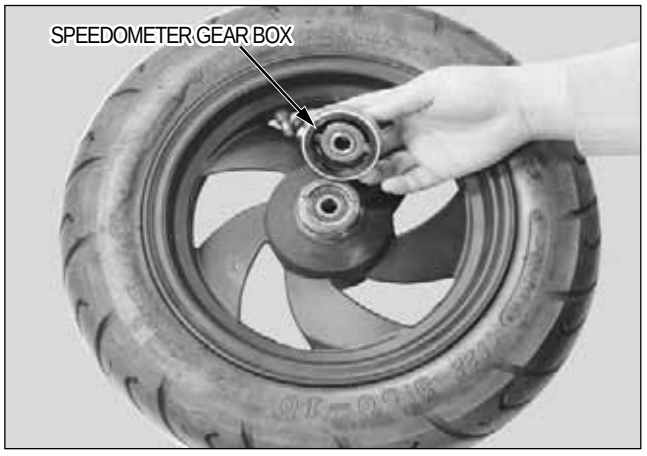


- Check the gear for wear or damage.

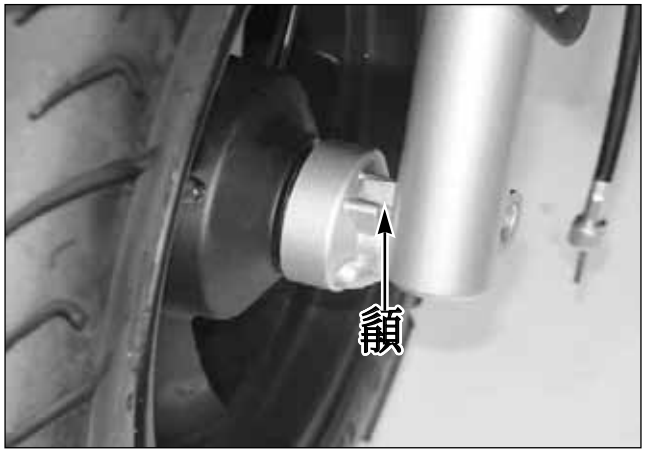


ASSEMBLY

- Apply grease to the speedometer and install it.
- Install the gear box retainer.



- Align the wheel hub with the projection area of the speedometer gear box retainer, and install.
- Apply grease to the dust seal rim.
- Install the dust seal, and align the projection area of speedometer gear box retainer with the gear groove to assemble the speedometer gear box.



FRONT WHEEL INSTALLATION

- Insert the front wheel between the front forks.
- Insert the disk, taking precautions not to damage the pad, and assemble the wheel.
- Align the slots of the speedometer gear with tangs of the left fork slider.
- Insert the front axle into the speedometer gear box and the wheel hub.

- Install the axle nut.
- Install the speedometer cable and tighten with screws.
- Place the front wheel on the ground, and tighten the axle nut to the specified torque.
  TORQUE VALUE : 5.0~7.0kgf · m

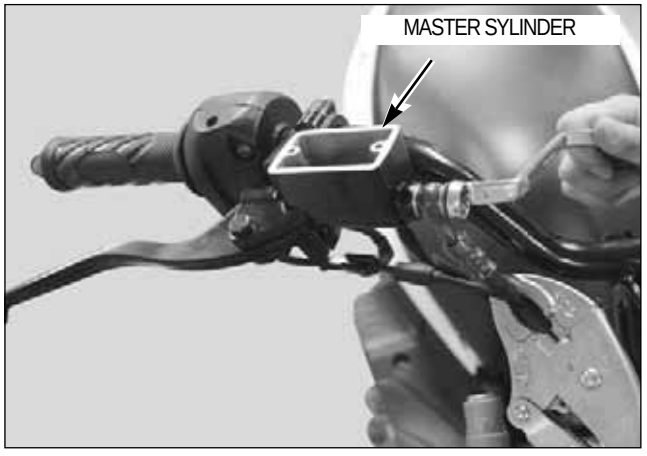
BRAKE DISK INSPECTION

- Check crack or damage of brake disk
- Measure the thickness of brake disk by micrometer.
  TSERVICE LIMIT : FRONT 3.5MM

- If the minimum measured is lower than service limit, replace brake disk.

- Measure the bent or twist of brake disk.
  TRANSMISSION OIL CAPACITY : 0.12 L

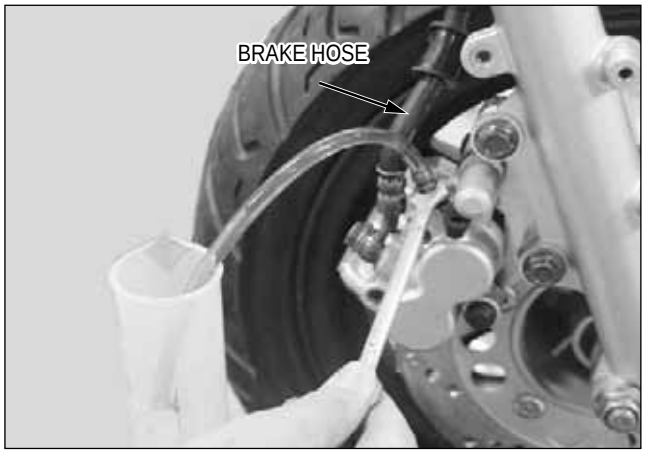
- If the bent or twist exceeds over the service limit, check the tolerance of wheel bearing
- If the wheel bearing works regularly, replace brake disk.



FRONT BRAKE

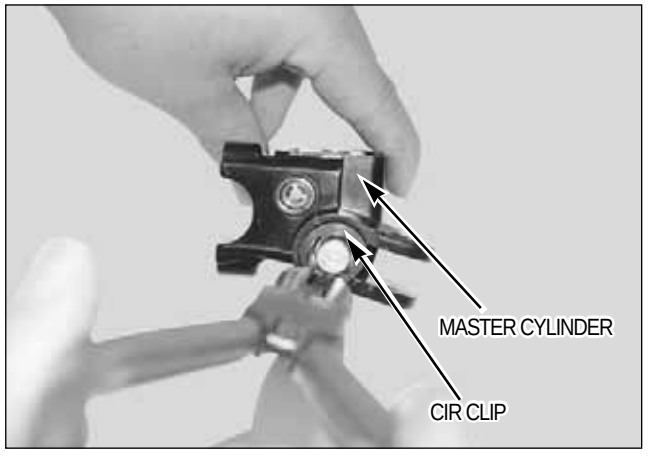
MASTER CYLINDER REMOVAL

- Remove the front handle cover.
- Drain the brake fluid.
- Remove the front stop switch coupler.



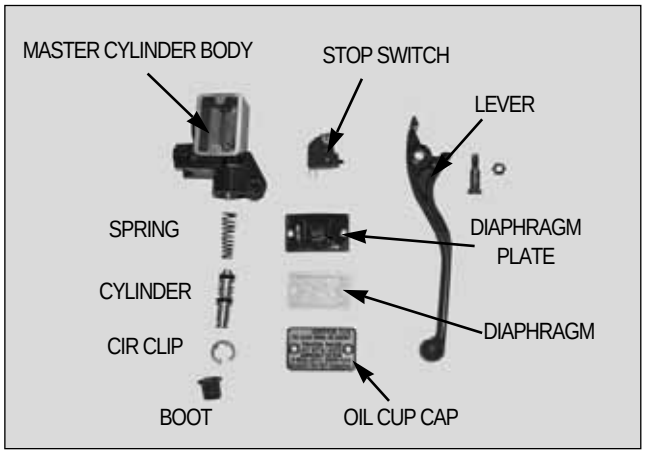
NOTE

- The brake fluid can damage the painted plastic or rubber parts. Keep these parts from contacting with them and wash these parts with water in case of contact.
- Cover the joint part of the hose to prevent the leak the brake fluid from leaked.
- Clean the removed parts with brake fluid and check the airing of each part with compressed air.
- Arrange the removed parts not to be soiled with dust or dirt.

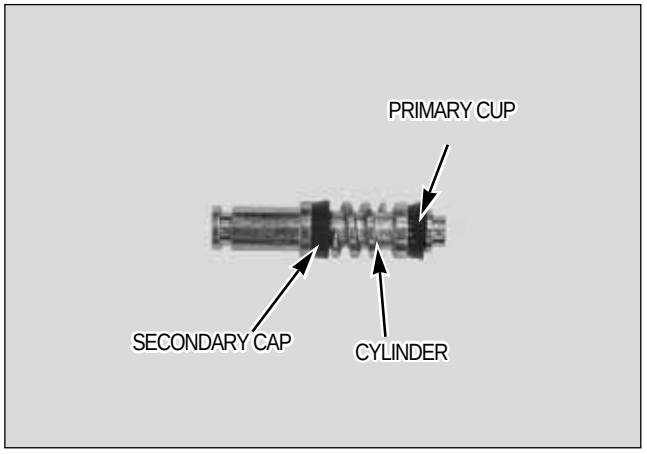


REMOVAL

- Loosen the brake hose oil bolts.
- Loosen the master cylinder holder bolts.
- Remove the master cylinder.
- Remove the front stop switch.
- Remove the boot and cir clip from the master cylinder.
  TOOL: SNAP RING PLIERS

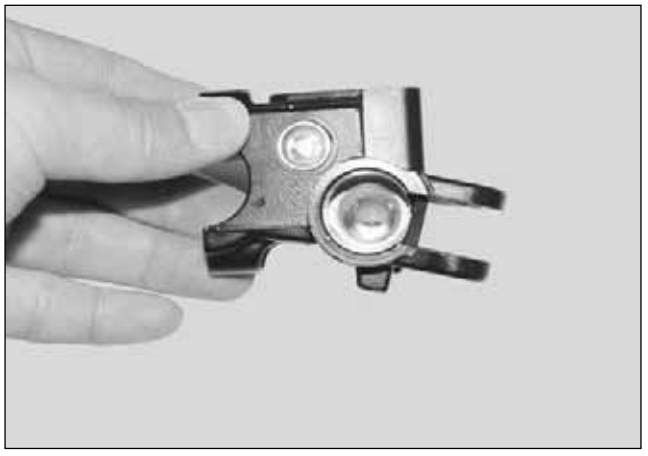


- Remove the cylinder, spring from the master cylinder.
- Clean the inside of master cylinder, reserve, master piston with the brake fluid.



INSPECTION

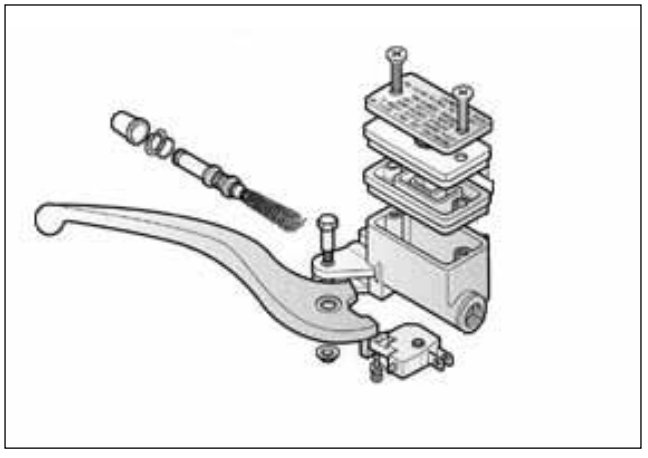
- Check the piston periphery for scores, scratched or nicks.
- Check the primary and secondary cups for wear.



NOTE

- If there is any leak of fluid, when installing new piston, it may indicate the side wear of the cylinder by the direction of the piston contacting face. In this case, the master cylinder must be replaced also.

- Check the master cylinder for scores, scratched or nicks and replace if necessary.

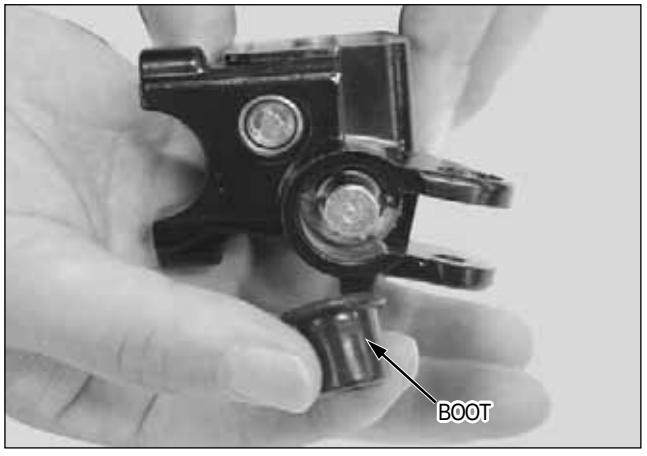


ASSEMBLY

CAUTION

- Replace the piston, spring, cups and snap ring as a set.
- Be sure that each part is free from dust or dirt before reassembly.
- When cleaning with the brake fluid, use the specified brake fluid.

- Apply the recommendatory brake fluid to the cup, cylinder and inside of cylinder, and install the spring, primary cup, piston.



NOTE

- When installing the cups, do not allow to close the cup ends.
- nstall the spring with it's smaller direction of coil ends toward the piston.

● Install the cir clip to the mater cylinder groove firmly.
TOOL: SNAP RING PLIER

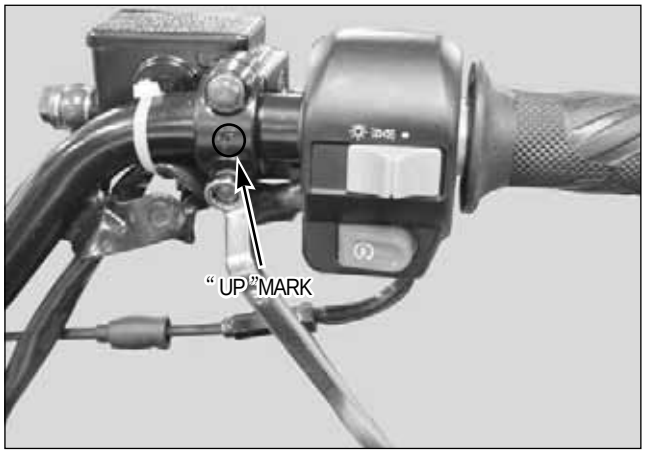
● Assemble boot to master cylinder.

INSTALLATION

● Install the front master cylinder to the handle.

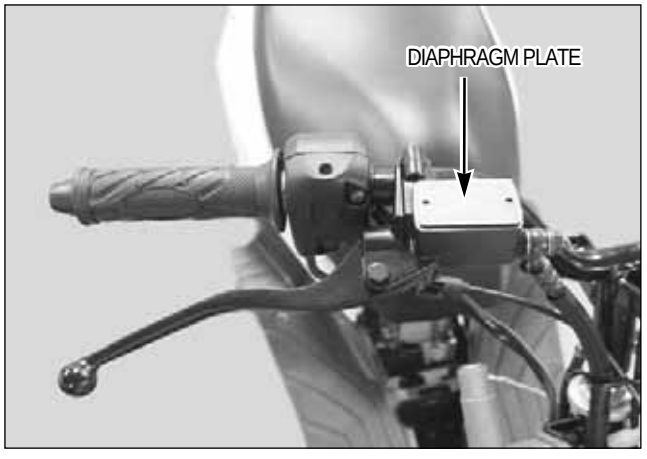
NOTE

- Install the holder with its "UP" mark facing upwards, and align the holder joint with the punch mark on the handle bar.
- Tighten the holder upper bolt first.



● Install the brake hose to the master cylinder with 2 new sealing washers and the hose bolt.
TORQUE : 3.0 kgf · m

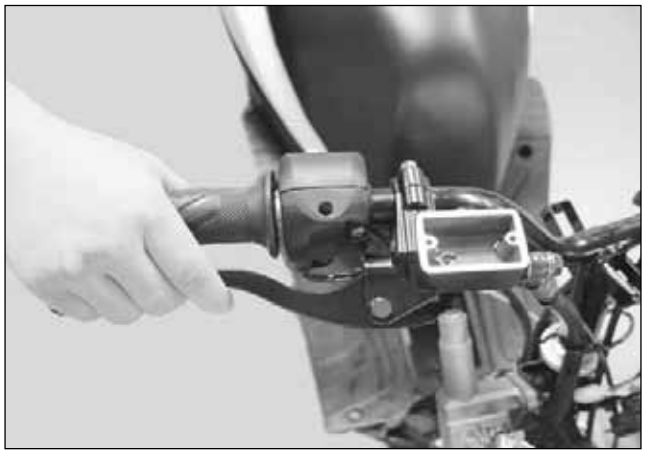
● Loosen the 2 flat screws, remove the oil cup cap, diaphragm.
● Fill the brake fluid and bleed air.
● Install the diaphragm, diaphragm plate and oil cup cap, tighten the 2 flat screws.



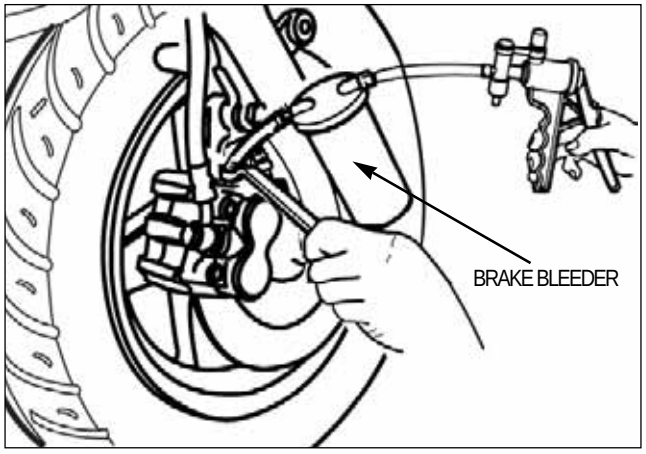
BRAKE FLUID REPLACEMENT

NOTE

- A contaminate disk or pad reduces braking power. Do not allow the disk or pad to be contaminated by oil.
- Replace contaminated pads, and remove pollutants from the disk completely.
- Check the brake fluid level often and replenish new fluid as requires.
- Do not spill fluid on painted, plastic or rubber parts.



- Remove the master cylinder cup cap.
- Remove the master cylinder cup cap, diaphragm plate, and diaphragm from the master cylinder. Connect the bleeder hose to the bleeder valve. Loosen the bleeder valve, and pump the brake lever repeatedly.
- When there is no more fluid flowing out of the bleeder valve. Stop pumping the brake lever.



AIR BLEEDING

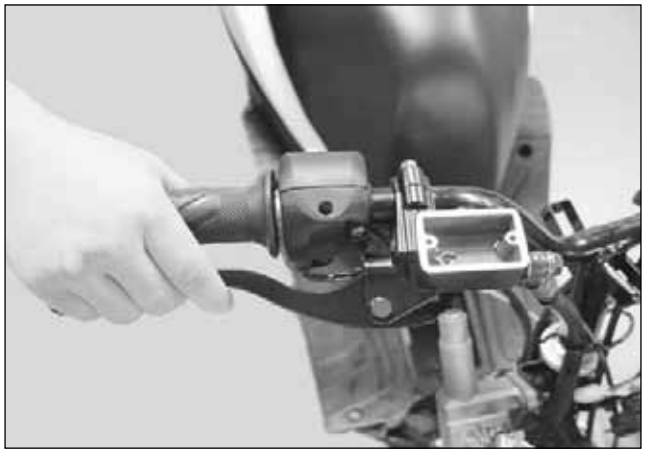
<When the brake bleeder is available>

- Remove the master cylinder cup cap, diaphragm plate, and diaphragm from the master cylinder. Connect the bleeder hose to the bleeder valve. Loosen the bleeder valve, and pump the brake lever repeatedly.
- When there is no more fluid flowing out of the bleeder valve. Stop pumping the brake lever.

NOTE

- Check the fluid level often, and replenish fluid if the amount of fluid is reduced to the lower level.
- Read the user's manual carefully prior to disassembling or using the brake bleeder.
- Protect the bleeder valve with tape to prevent air from entering the bleeder valve.

- Repeat the above procedures until no air bubbles appear in the bleeder hose.
- Squeeze the bleeder valve and operate the brake lever to check the ingress of air.



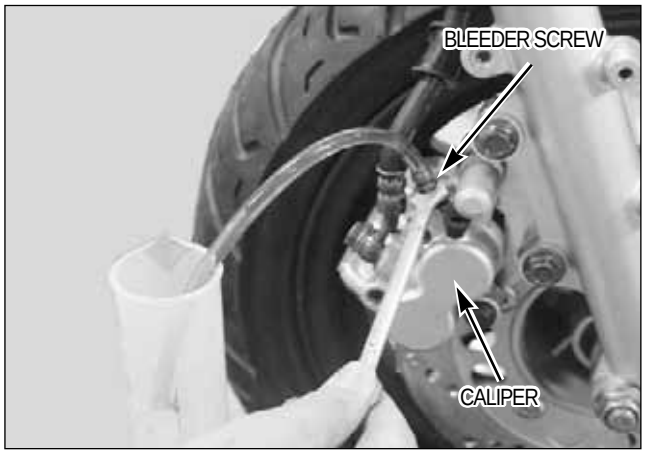
<When the brake bleeder is not available>

- Fill the brake fluid up to the upper limit line.
- Connect the transparent bleeder hose to the bleeder valve and place the other end of hose in a container.

① Squeeze the brake lever, then open the bleeder valve 1/2 turn, and close the valve.

NOTE

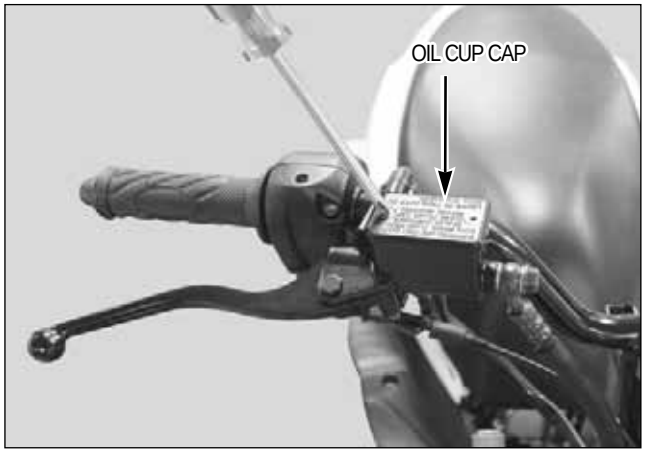
- Do not release the brake lever until the bleeder valve has been closed.



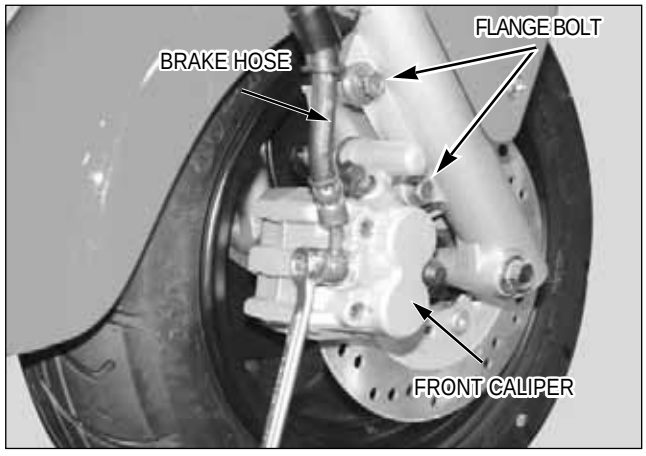
② Release the brake lever slowly and wait several seconds after it reaches the end of its travel

③ Repeat the above steps ① and ② until bubbles cease to appear in the fluid at the end of the hose

- Check the fluid level often, and add fluid if the fluid lever is near the lower level.
- If no air leaks out of the bleeder hose, operate the brake lever to check the presence of air.
- Tighten the bleeder valve.
  TORQUE: 0.4~0.7 : 5.5kgf · m



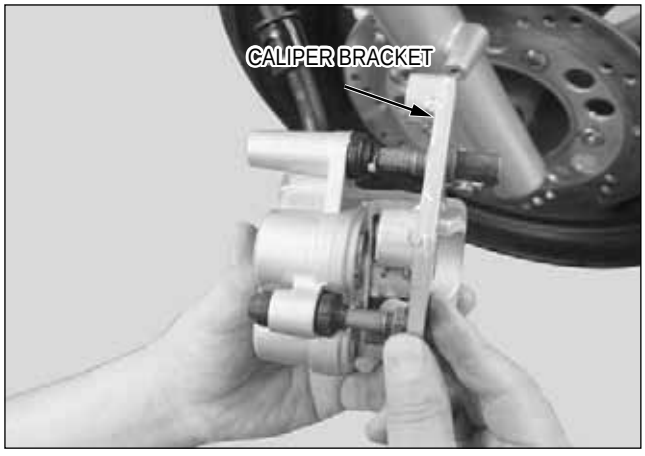
- Fill the brake fluid to the upper level. Install the diaphragm, diaphragm plate, master cylinder cap.
  TORQUE: 1.0kgf · m



BRAKE CALIPER

REMOVAL

- Drain the brake fluid.
- Loosen the oil bolt of brake hose.
- Loosen the flange bolt securing the caliper and remove the front caliper.

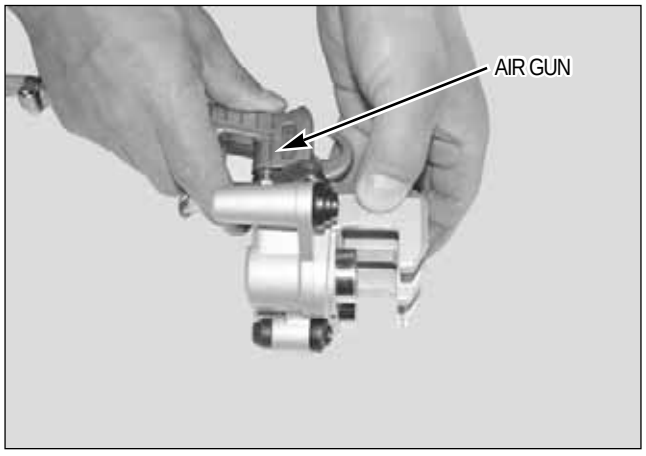


NOTE

- Avoid spilling fluid on painted, plastic or rubber parts.

CAUTION

- Keep oil off the brake or pad, because the contaminated brake disk or pads reduce the braking performance if contaminated.
- Replace the pad with a ne one and clean the disk.

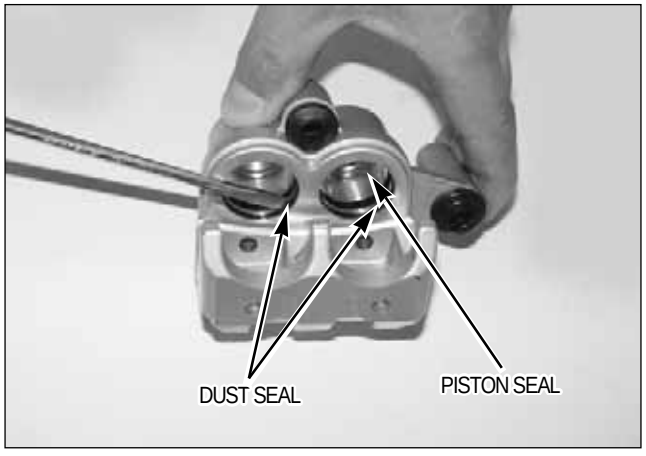


REMOVAL

- Remove the pad spring, pad comp, caliper bracket, boot from the caliper body.
- If there is any wear or damage in the boot, replace it with a new one.
- Wrap the caliper with a piece of cloth to avoid piston and brake fluid leakage and facing the piston downward.
- Remove the piston from the caliper while blowing the low-pressure air in the opening of the brake hose.

NOTE

- Never use the high-pressure air or bring the air gun too close.
- Never touch the inside of the caliper.

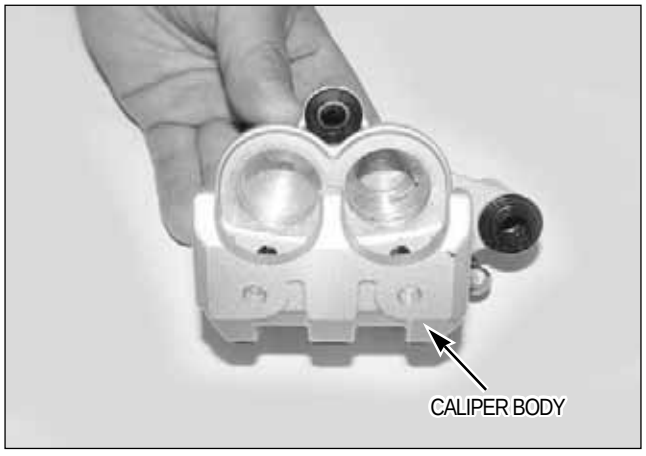


- Remove the piston seal and dust seal.

NOTE

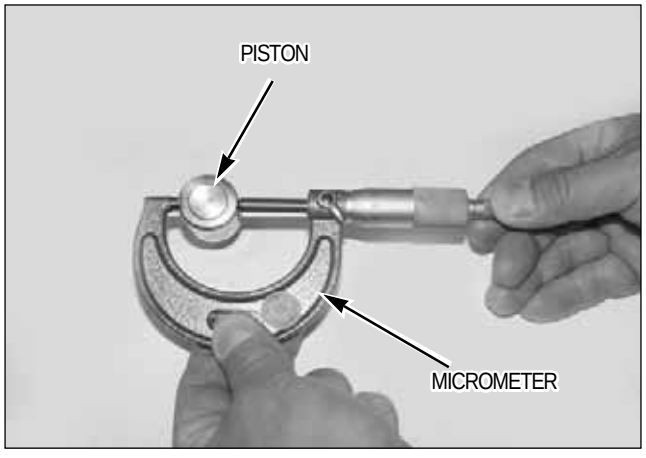
- Pay attention not to damage the inner surface of the caliper.

- Clean the piston and inside of the caliper with the brake fluid.

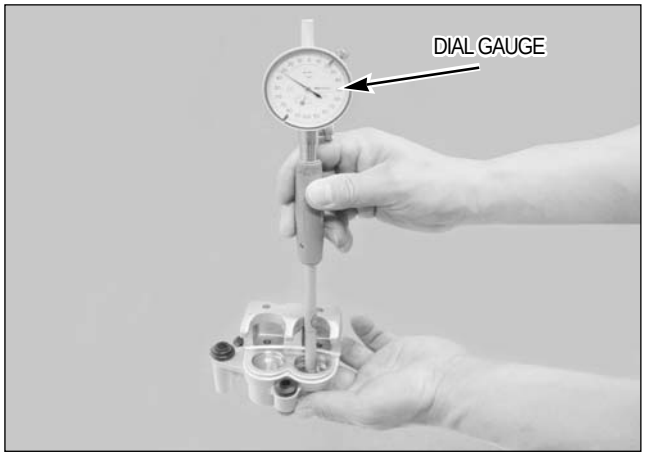


INSPECTION

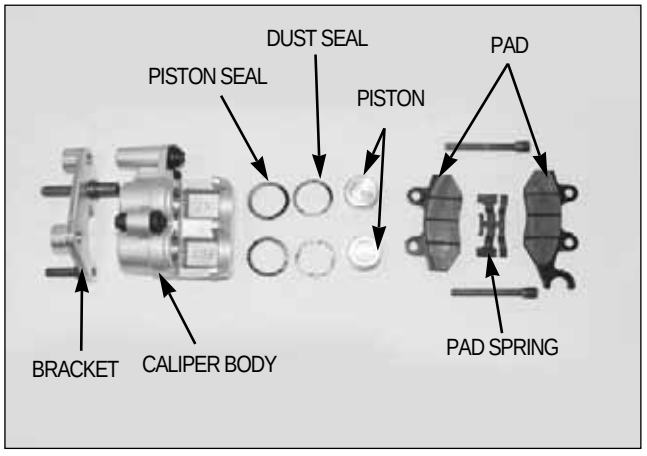
- Check the caliper bore for scoring, scratches, or other fluid.



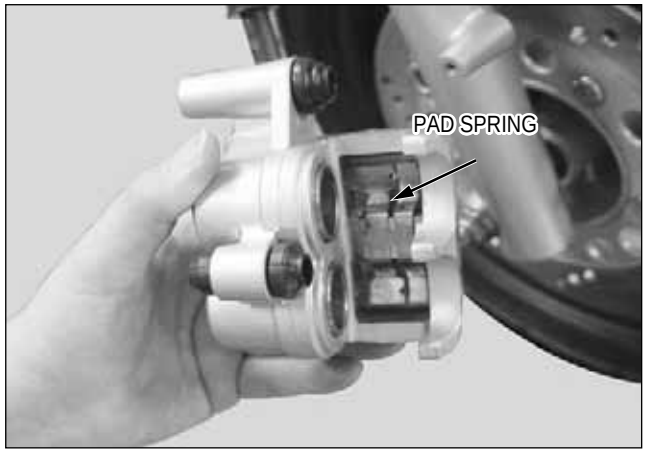
- Check the caliper piston outer diameter part for scratches or other damage.
- Measure the piston outer diameter.
  SERVICE LIMIT : 24.889MM



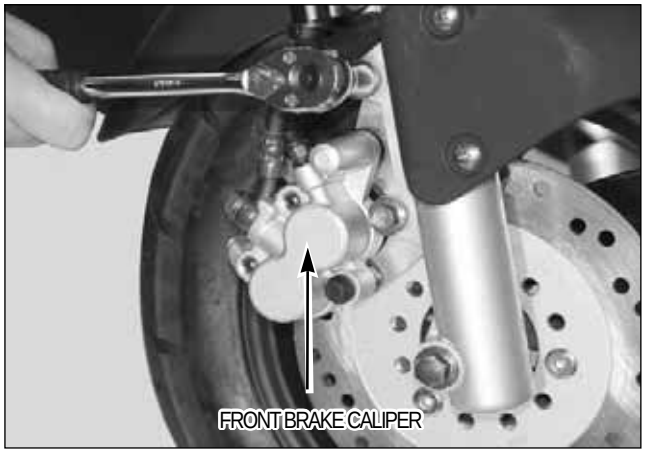
- Measure the caliper inner diameter.
  SERVICE LIMIT: 25.043 MM



- Clean the piston seal and dust seal with the brake fluid and install them in caliper.
- Install the piston in the caliper with the groove side of the piston facing the pad.



- Install the pad spring the caliper.
- Install the caliper pin bolt and the caliper bracket to the caliper.
- Install the brake pad to the caliper.

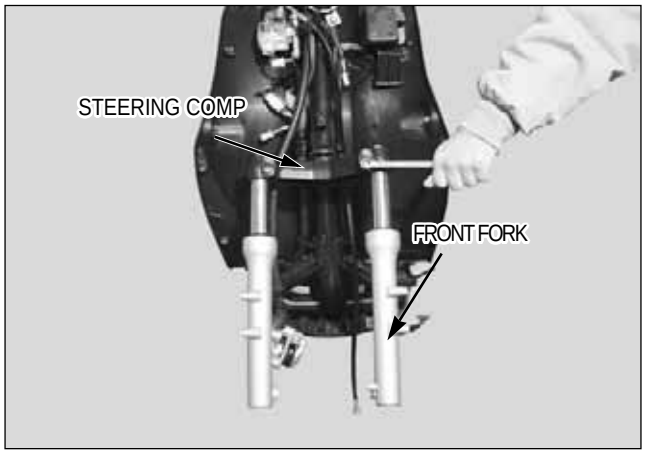


INSTALLATION

- Install the brake caliper to the front fork, and front axle.
- Install the caliper to the specified torque.
  TORQUE: 3.0kgf · m

- Install the brake hose to the caliper body with the new 2 oil bolts washers and oil bolts.
- Install the oil bolt to the specified torque.
  TORQUE: 3.0kgf · m

- Fill the brake fluid and bleed air.

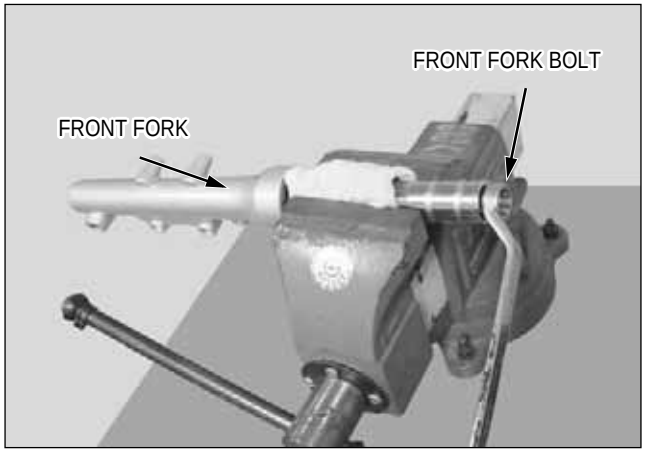


FRONT FORK

- Remove the front under cover.
- Remove the front caliper.
- Remove the front fender.
- Remove the front rear wheel.
- When removing the front fork, loosen the fork pipe bolt lightly.

NOTE

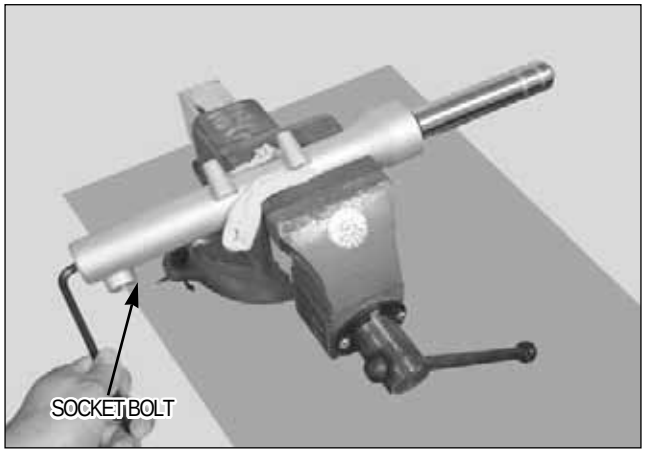
- Support the vehicle securely under the engine not to turn over it.
- Loosen the fork pipe bolt, but do not remove it.



- Loosen the 4 setting bolts securing the RH./LH. fron fork, remove the RH./LH. front fork.
- After removing the RH. front wheel, loosen the flange bolt and the remove the front brake hose clamp A.

REMOVAL

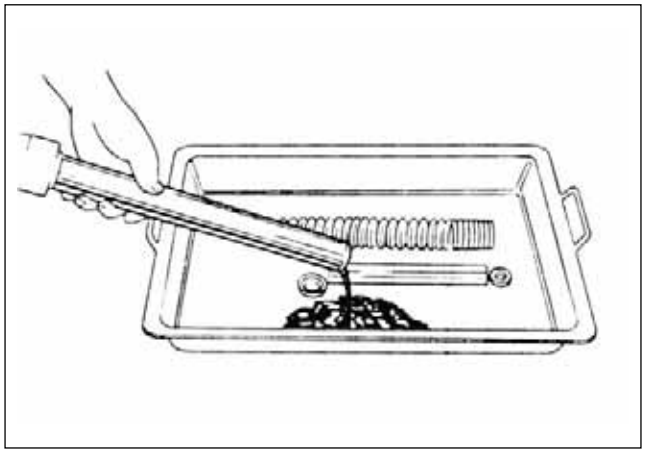
- Remove the front fork bolt.



CAUTION

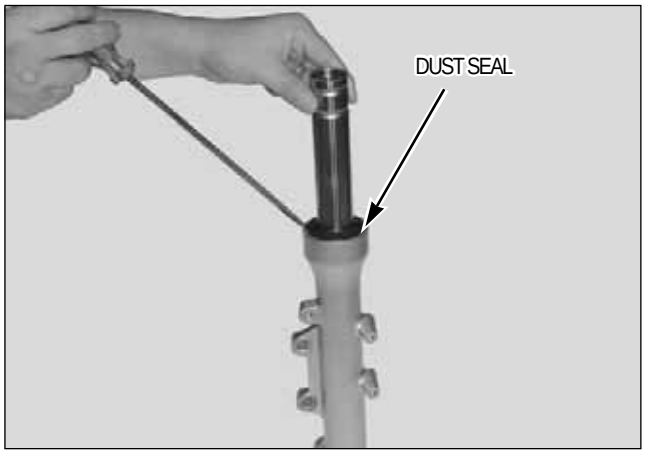
- If the screw is completely loosened, the fork pipe bolt may spring out by the force of the spring. Take precautions.
- Remove the fork spring and expand and release the fork pipe several times to drain fork oil.

- Wrap the bottom case with a piece of cloth, and remove the socket bolt.

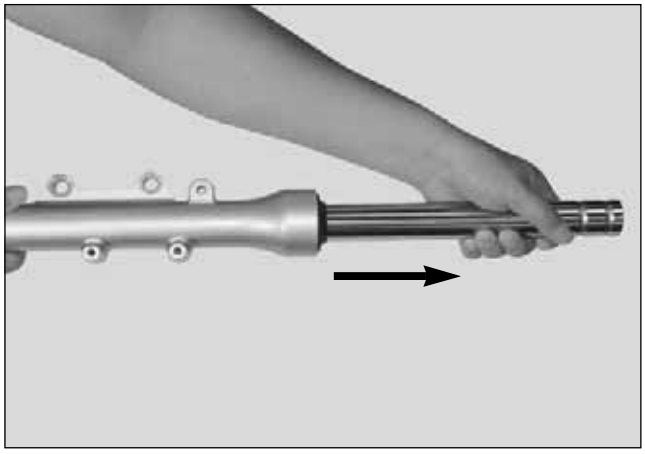


NOTE

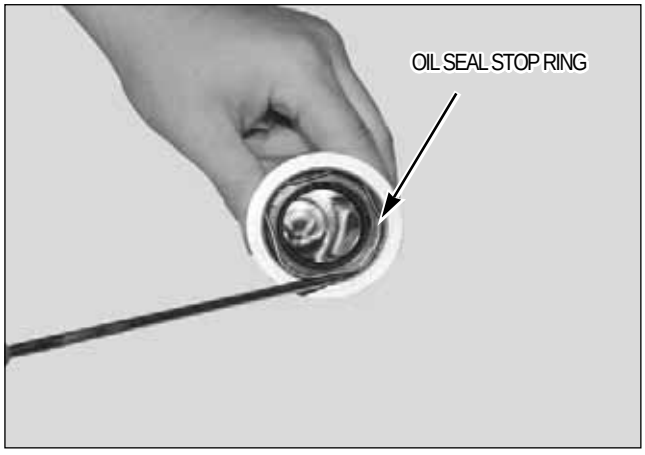
- If the socket bolt turns idle, but cannot be removed, temporarily assemble the spring and the fork tube cap bolt first.
- Hold the bottom case firmly with a vise, taking precautions not to distort or damage it.



- Remove the dust seal.



- Remove the fork pipe from the bottom case.
- Remove the piston and rebound spring from the fork pipe.

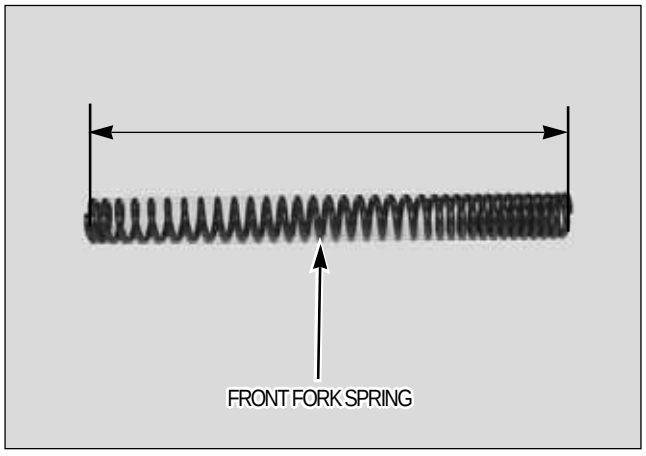


- Remove the oil seal stop ring.

- Remove the oil seal.

NOTE

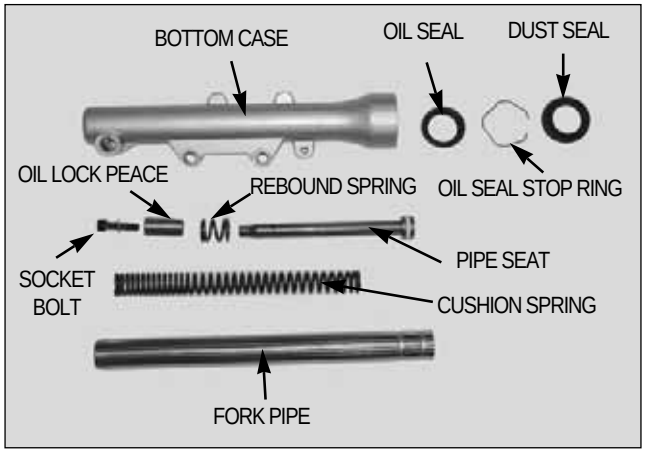
• Take precaution not to damage the interior and exterior rim of the bottom case.



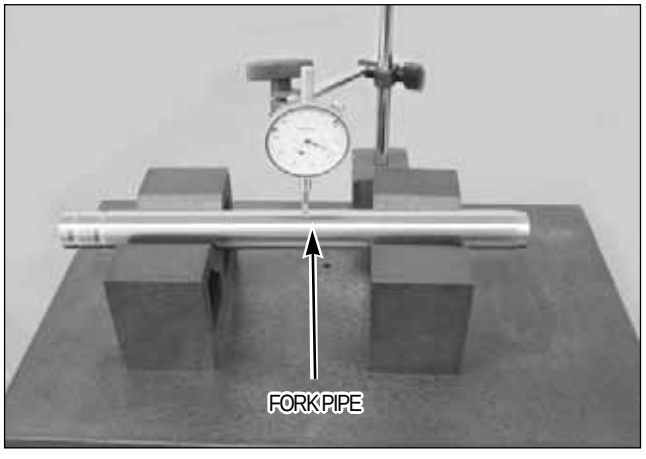
INSPECTION

- Place the fork spring on a level place, and measure the free length.
- If the free length deviates from the service limit, replace the springs with now ones.

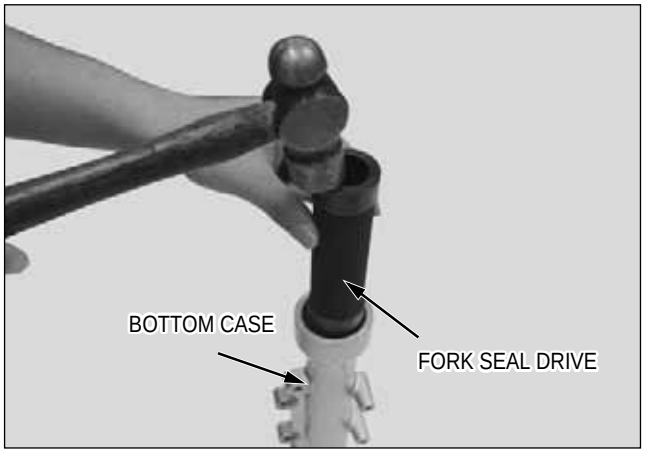
SERVICE LIMIT: 232 MM



- Check components for damage or abnormal wear. Replace defective parts with new ones.



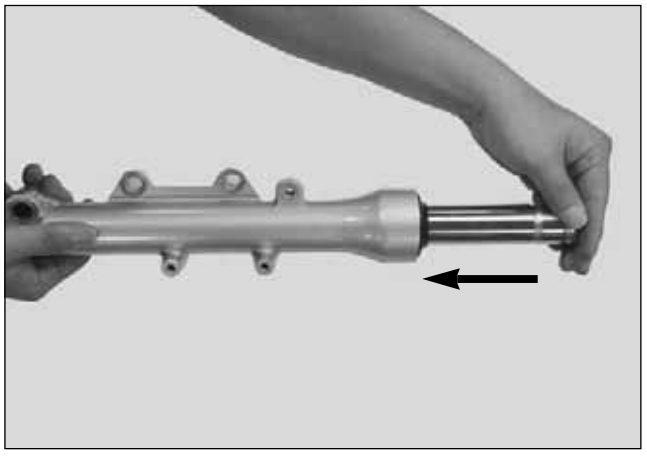
- Set the fork pipe on a V-blocks, and measure fork pipe deflection by rotating with a dial gauge.
- Replace if the defletion is greater than 0.2mm.
- Check the contact side of slider bush.
- Replace bottom case when serisously damaged.



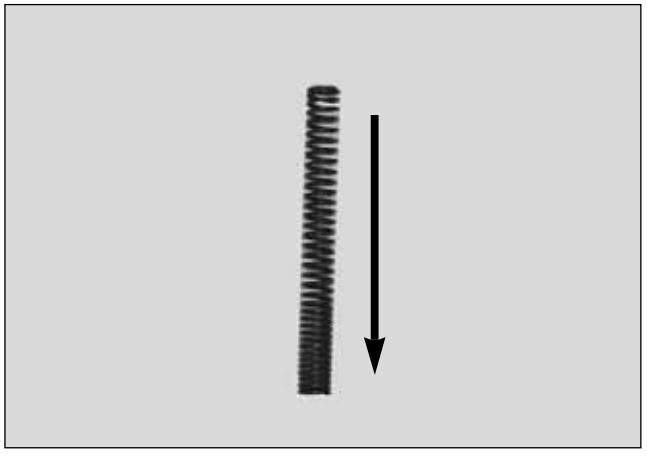
ASSEMBLY

- Wash parts with clean oil prior to assembling.
- Assemble the rebound spring and fork piston to the fork pipe.
- Assemble oil seal
- Assemble oil seal stop ring
- Apply ATF to the new oil seal.
- Assemble the oil seal to the bottom case.
- Insert the oil seal with special tools until the attachment groove of the bottom case set ring is exposed.

TOOL: FORK SEAL DRIVER
FORK SEAL DRIVER BODY



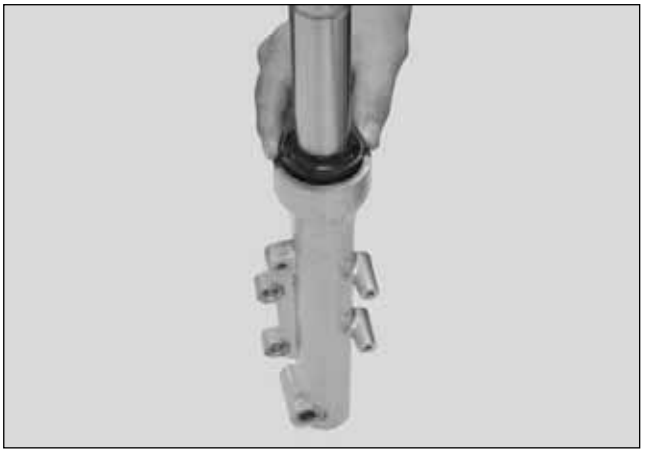
- Assemble the fork pipe to the bottom case.



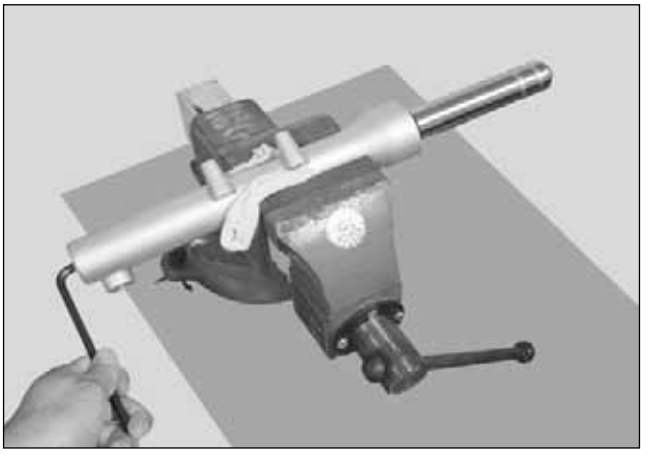
- Assemble the springs to the fork pipe.

NOTE

- Install the spring with the smaller pitch side facing downward.



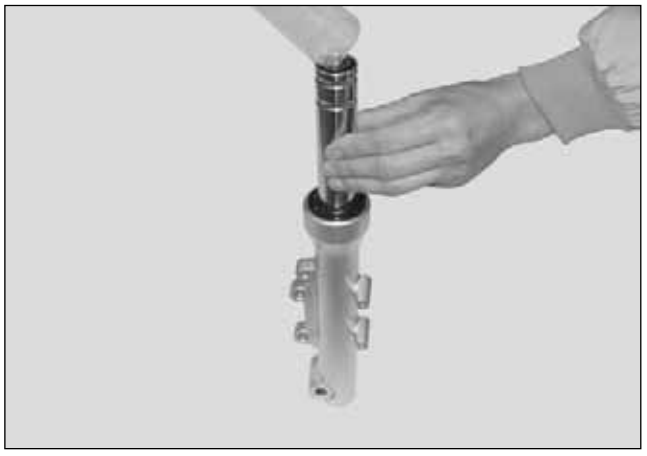
- Accurately assemble the stop ring to the bottom case.
- Install the dust seal.



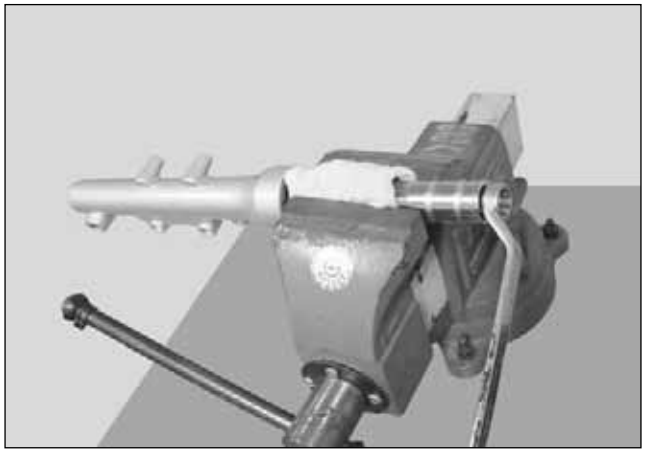
- Fix bottom case by wrapping cloth fix to vice.
- Assemble to fork piston by applying screw lock gell to the screw side of socket bolt.
  TORQUE VALUE : 2.0kgf · m

NOTE

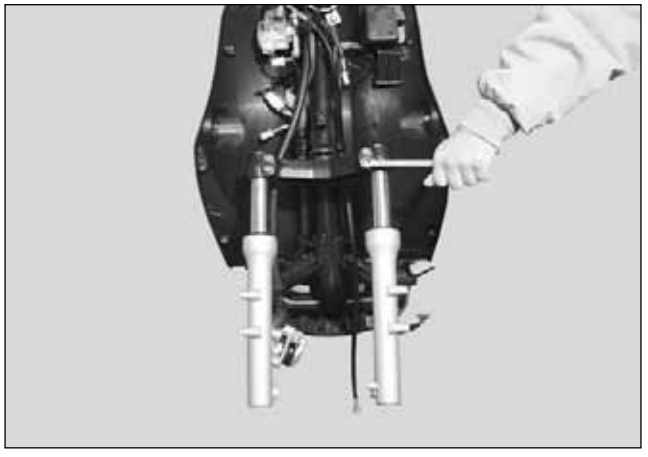
- When fix bottom case to vice, do not insert bottom case directly and surely insert to the side of bracket.



- Fill a prescribed amount of automatic transmission fluid in to the fork pipe.
  CAPACITY: 90 ㎤
- Slowly press the fork tube 2-3 times to discharge air.
- Check the oil level the fork tube is completely compressed condition.



- Install the fork pipe bolt toe the fork pipe.



INSTALLATION

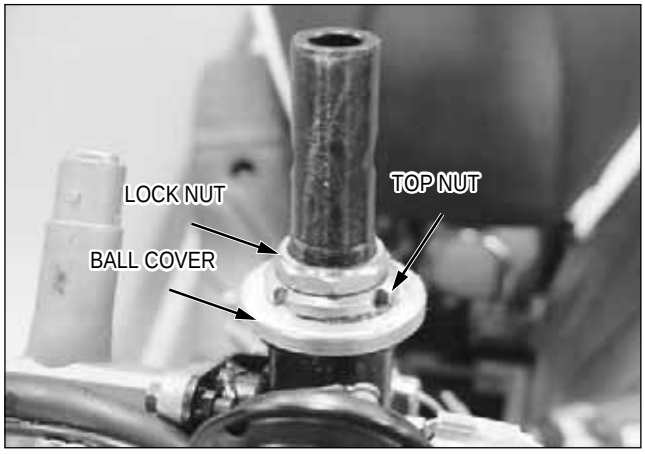
- Align the part of groove with the setting bolt connection.
- Install 8mm front fork setting bolt.
  TORQUE VALUE : 2.5kgf · m
- Install the brake hose clip to the RH. Front brake fork.

- Install in the reverse order of removal.

STEERING STEM

REMOVAL

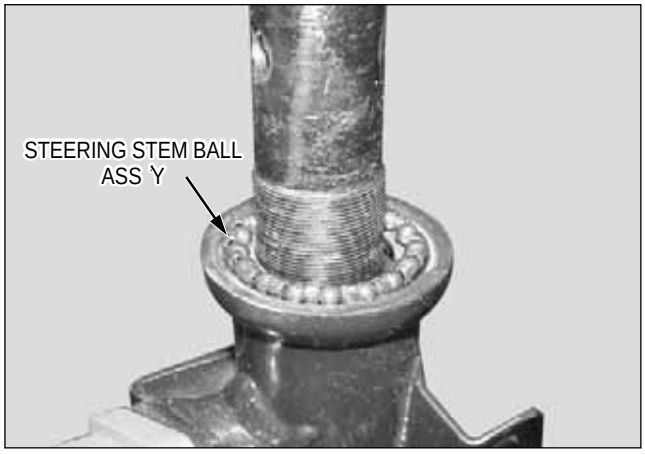
- Remove the handle cover.
- Remove the rear handle cover.
- Remove the front cover.
- Remove the handle bar.
- Remove the front wheel.



NOTE

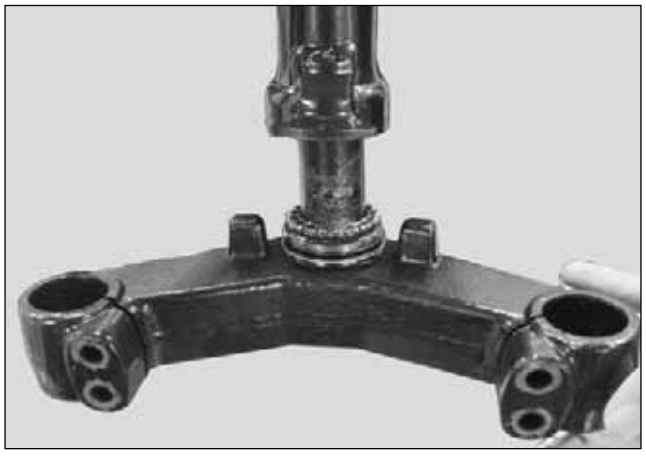
• Be careful not to turn over the vehicle.

- Remove the steering lock nut.
- Remove the steering top nut.



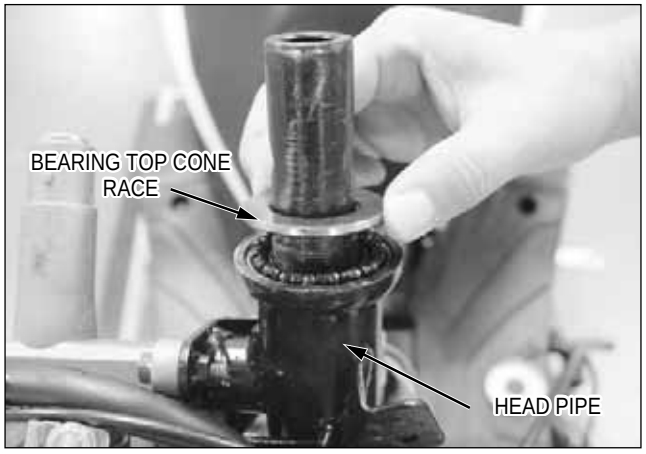
- Remove ball cover.
- Remove steering top con race.
- Check damage or worn by disassembling steering stem ball ass'y.

- Check damage or worn by disassembling steering under ball ass'y.

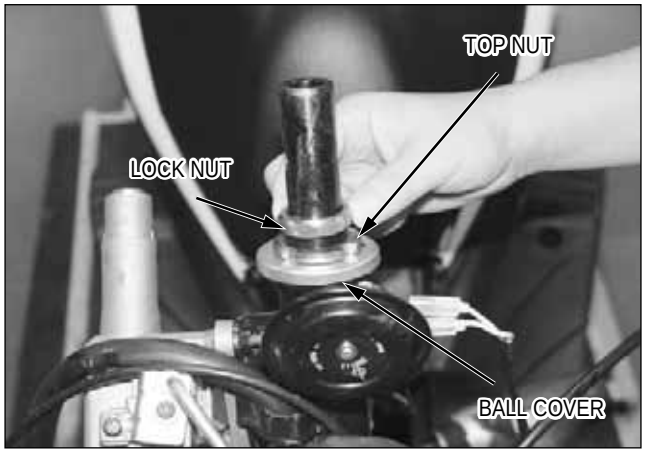


INSTALLATION

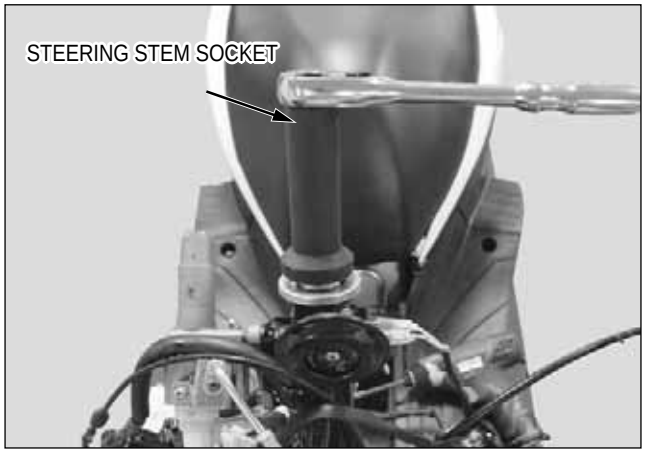
- Apply grease to steering bottom con race, then assemble steering stem ball ass'y.
- Assemble steering stem to frame body head pipe.



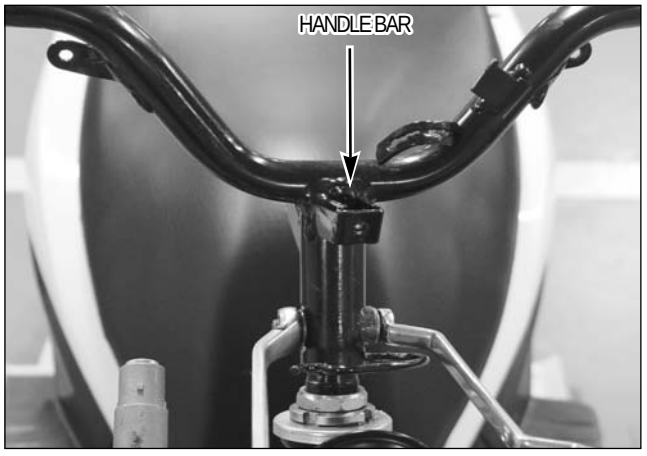
- Apply grease to frame body head pipe,then assemble steering stem ball ass'y.
- Assemble steering top con race
- Assemble temporarily top nut after doing ball cover.



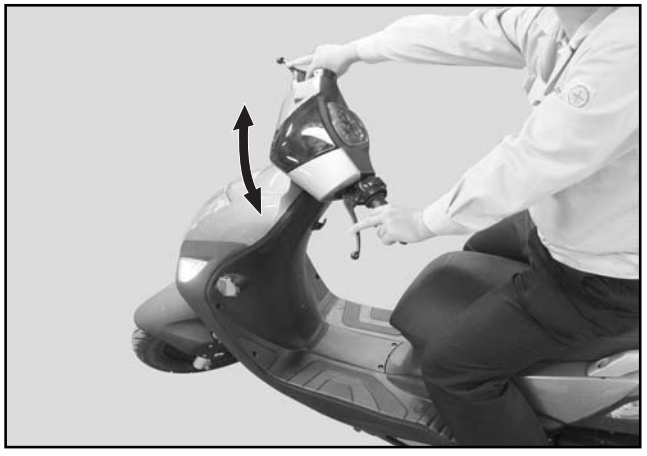
- Completely fasten top nut then diassemble 1/8.
  TORQUE : 0.25 kgf · m
- Check whether moves left and right smoothly and tolerance between up and down.



- Assemble temporarily by assembling steering stem lock nut.
  TOOL : TOOL : STEERING STEM LOCK NUT SOCKET, STEERING STEM SOCKET
- After temporarily assembling front fork, assemble steering stem lock nut.
  TORQUE : 7.0 kgf · m

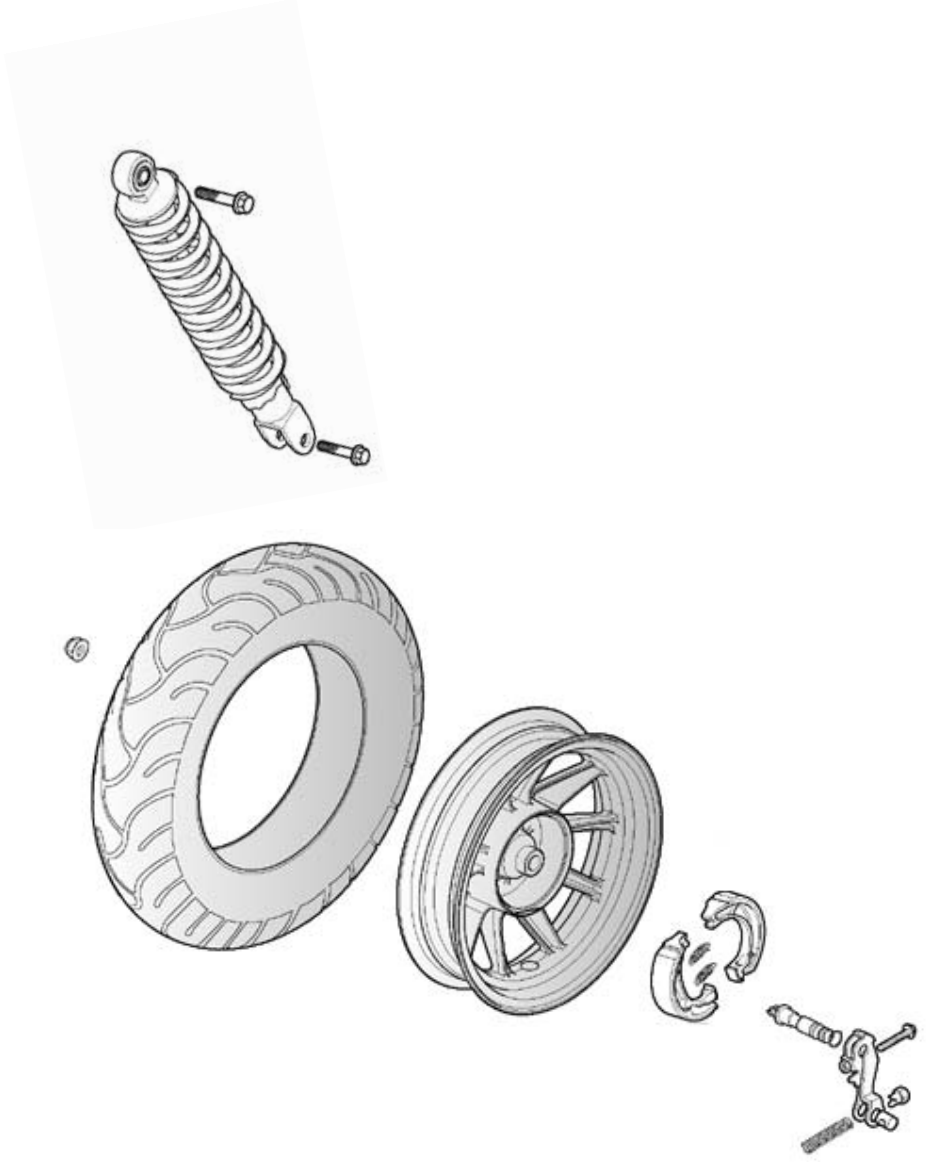


- Assemble the following parts.
  - Front fork.
  - Front wheel.
  - Handle bar.
  - Handle cover.
  - Front cover.



- Check the followings after assembling
- By meeting the regular inspection schedule, check fixing of all nuts, bolts which are fixed based on the regular torque standards
- Check all pin, clips, hose clamps and cable stay.

MEMO



13. REAR WHEEL / REAR BRAKE / REAR CUSHION

SERVICE INFORMATION · · · 13-1
TROUBLE SHOOTING · · · · 13-2
REAR WHEEL · · · · · · · · 13-3
REAR BRAKE · · · · · · · · 13-4
REAR CUSHION · · · · · · · 13-6

SERVICE INFORMATION

GENERAL SAFETY

- If the brake drum or lining is contaminated with oil, braking power will be lost. If contaminated with oil, clean the brake drum, and replace the brake shoe.
- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use a brake cleaner, designed to mininize the hazard caused by airborne asbestos fibers.

SPECIFICATIONS

ITEM		STANDARD VALUE	SERVICE LIMIT
AXLE SHAFT RUN OUT		-	0.2mm
REAR WHEEL RIM WOBBLES	RADICAL	-	2.0mm
	AXIAL	-	2.0mm
REAR BRAKE DRUM INNER DIAMETER		110.0mm	110.5mm
REAR BRAKE LINING THICKNESS		4.0mm	2.0mm (Worn limit marking)
REAR CUSHION SPRING FREE LENGTH		185mm	-

TORQUE VALUES

REAR CUSHION UPPER BOLT	3.5~4.5kgf · m
REAR CUSHION LOWER BOLT	3.5~4.5kgf · m
REAR CUSHION ROD LOCK NUT	3.0~4.5kgf · m
REAR AXLE NUT	11~13kgf · m

TROUBLE SHOOTING

Rear wheel wobbling or vibration

- Deformed wheel, rim
- Bad tire
- Axle bad fastening
- Bad tire air pressure
- Improper wheel balancing

Soft rear suspension

- Bad spring
- Bad rear damper, oil leakage

Hard suspension

- Twisted damper rod
- Bad tire air pressure

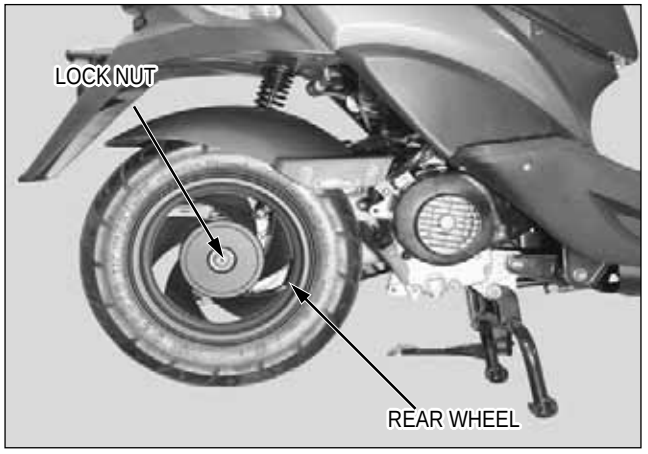
Rear cushion noise

- Looseness of fastening and assmbled points

REAR WHEEL

REMOVAL

- Erect the motorcycle on the main stand.
- Remove the muffler.

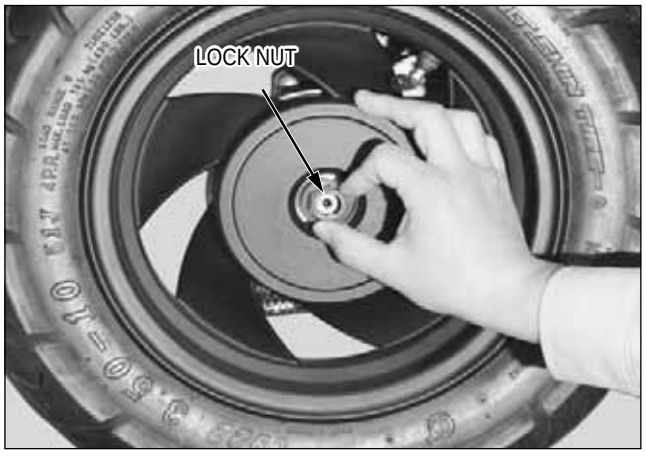


- Untie rear wheel flange lock nut 16mm.

- Remove the rear wheel.

INSPECTION

- Check the rim for wobbles by rotating the wheel.
  SERVICE LIMIT: RADIAL 2.0 MM
  AXIAL 2.0 MM



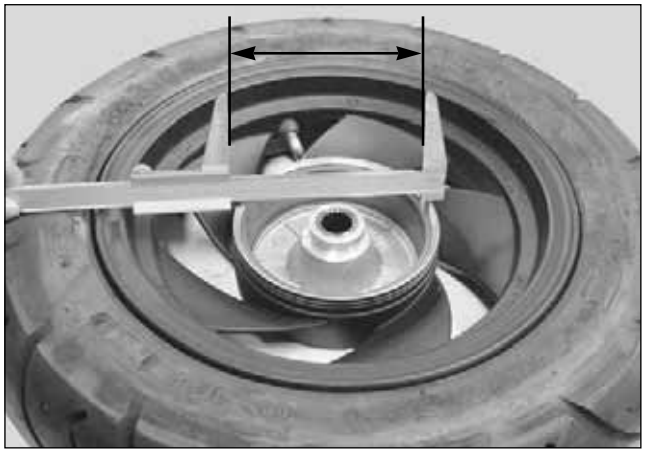
INSTALLATION

● Assemble rear wheel by flange lock nut 16mm.
TORQUE : 1.2 kgf · m

● Install in the reverse order of removal.

NOTE

• After installing the rear wheel, be sure to adjust the brake lever free play.

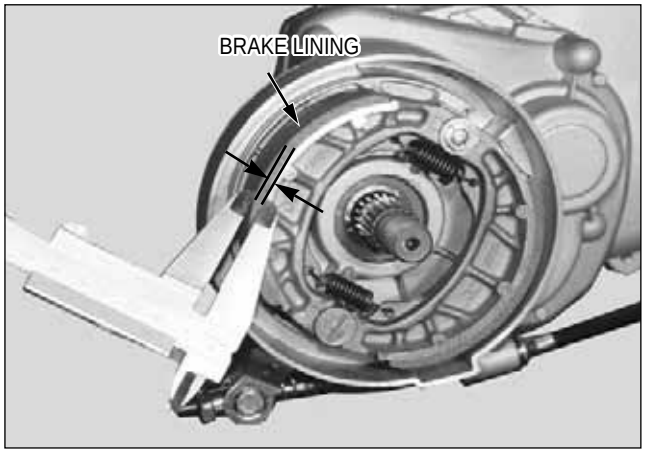


REAR BRAKE

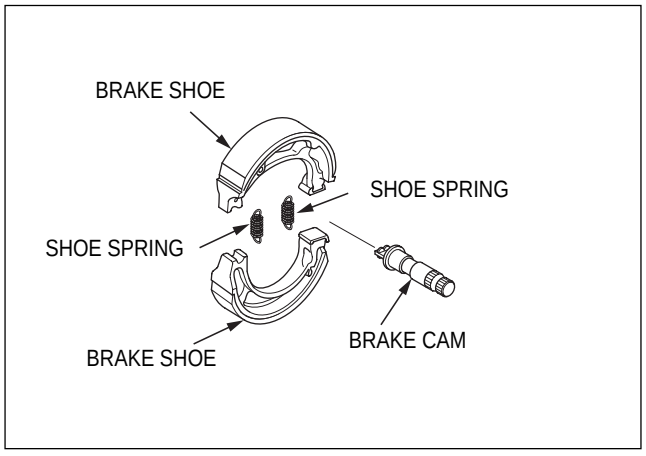
● Remove the rear wheel.

INSPECTION

● Measure the brake drum for inner diameter.
SERVICE LIMIT: 110.5MM

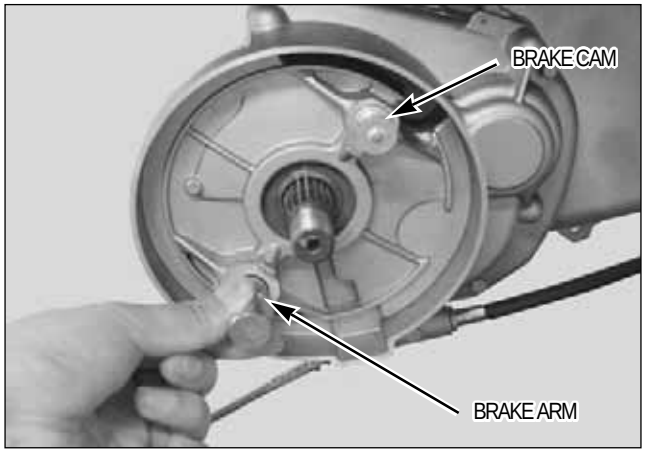


● Measure the brake lining for thickness.
SERVICE LIMIT: 2.0 MM

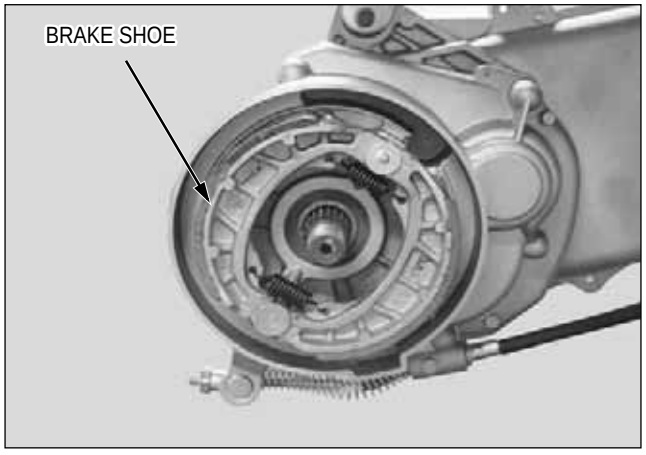


REMOVAL

- Manually open the brake shoe and remove it.
- Remove the shoe spring from the brake shoe.



- Loosen the rear brake arm fixing bolt.
- Remove the rear brake arm.
- Remove the rear brake cam..



INSTALLATION

- Apply the small amount of grease to the brake cam.
- Install the brake.
- Install the rear brake arm.
- Install the brake shoe, spring.
- Install the brake shoe to the brake cam.

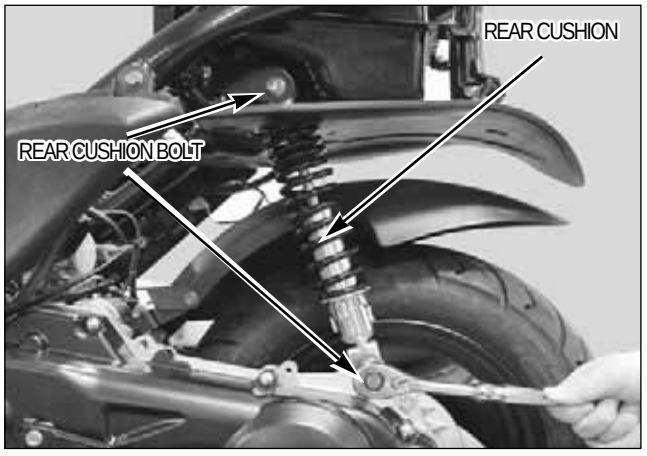
NOTE

- Align the punched marks of the brake arm and the brake cam before assembly.
- Remove the excessive grease after assembling the shoe.

- Install the rear wheel.
- Install the lock nut.
- Assemble muffler.

NOTE

- Check the brake for smooth operation.



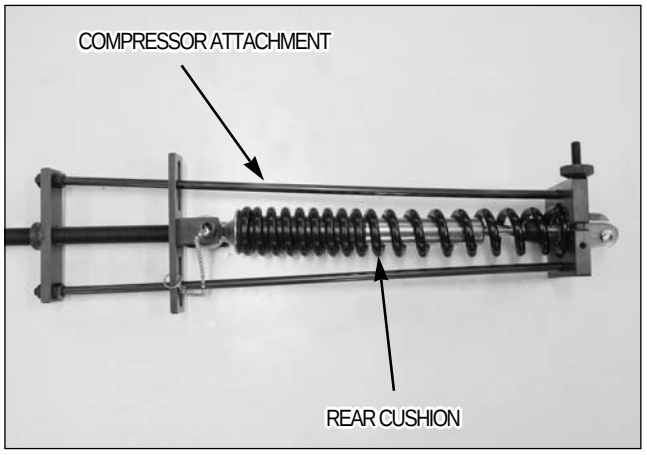
REAR CUSHION

REMOVAL

- Loosen the top and bottom rear cushion setting bolt.

NOTE

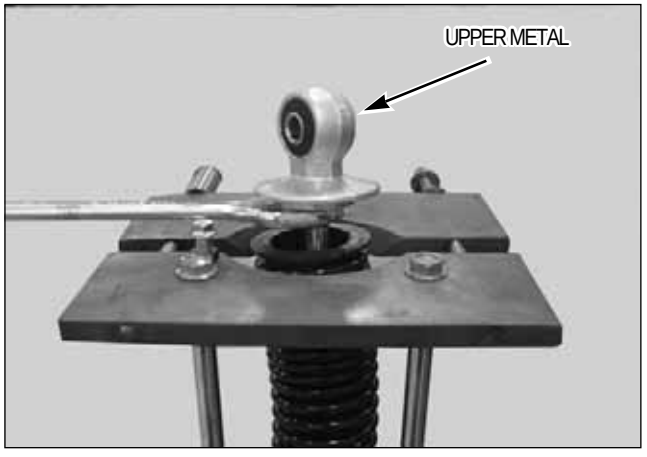
• Support the frame firmly prior to working.



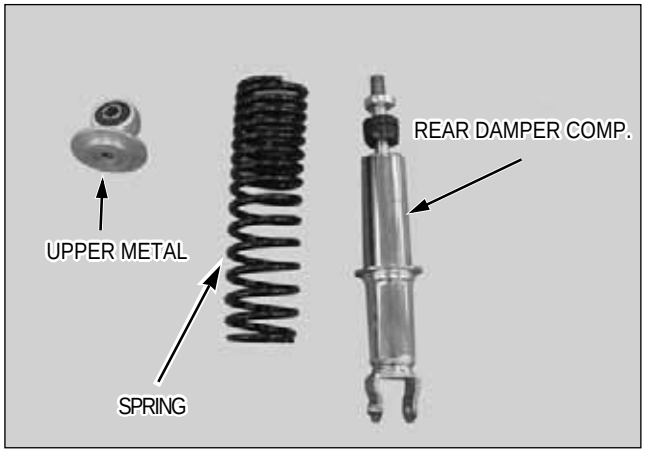
REMOVAL

- Install the compressor attachment as shown in the picture.
- Install the cushion on the cushion compressor, and compress the spring.

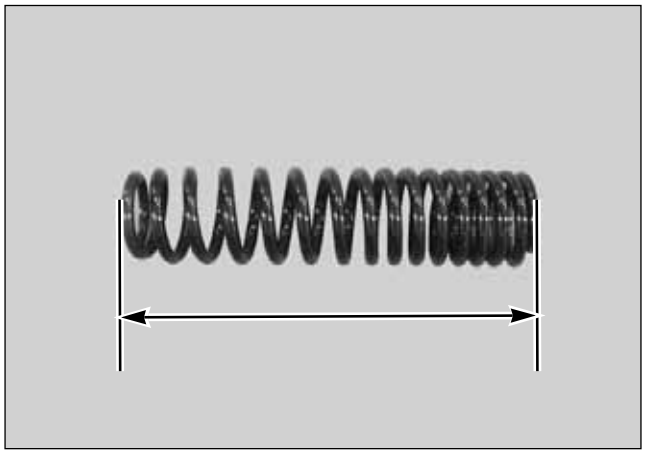
TOOL :
REAR CUSHION CONPRESSOR ATTACHMENT
REAR CUSHION COMPRESSOR



- Fix the upper metal, and loosen the lock nut.
- Remove the upper metal.



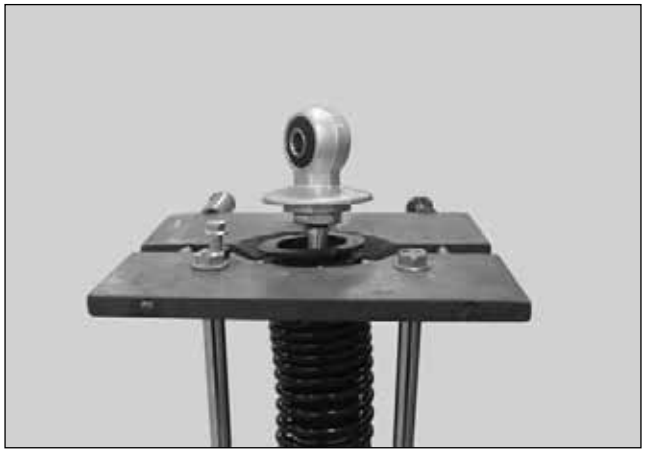
- Remove rear cushion.



INSPECTION

- Measure the rear cushion spring free length.
- Check the damper rod for deflection or damage.

SERVICE LIMIT: 185 MM



INSTALLATION

- Install the spring, stop rubber.
- Apply thread locking agent to the lock nut, and install the rear cushion compressor attachment on damper rod.
- Fix the upper metal, and tighten the lock nut.

TORQUE: 3.5 kgf · m

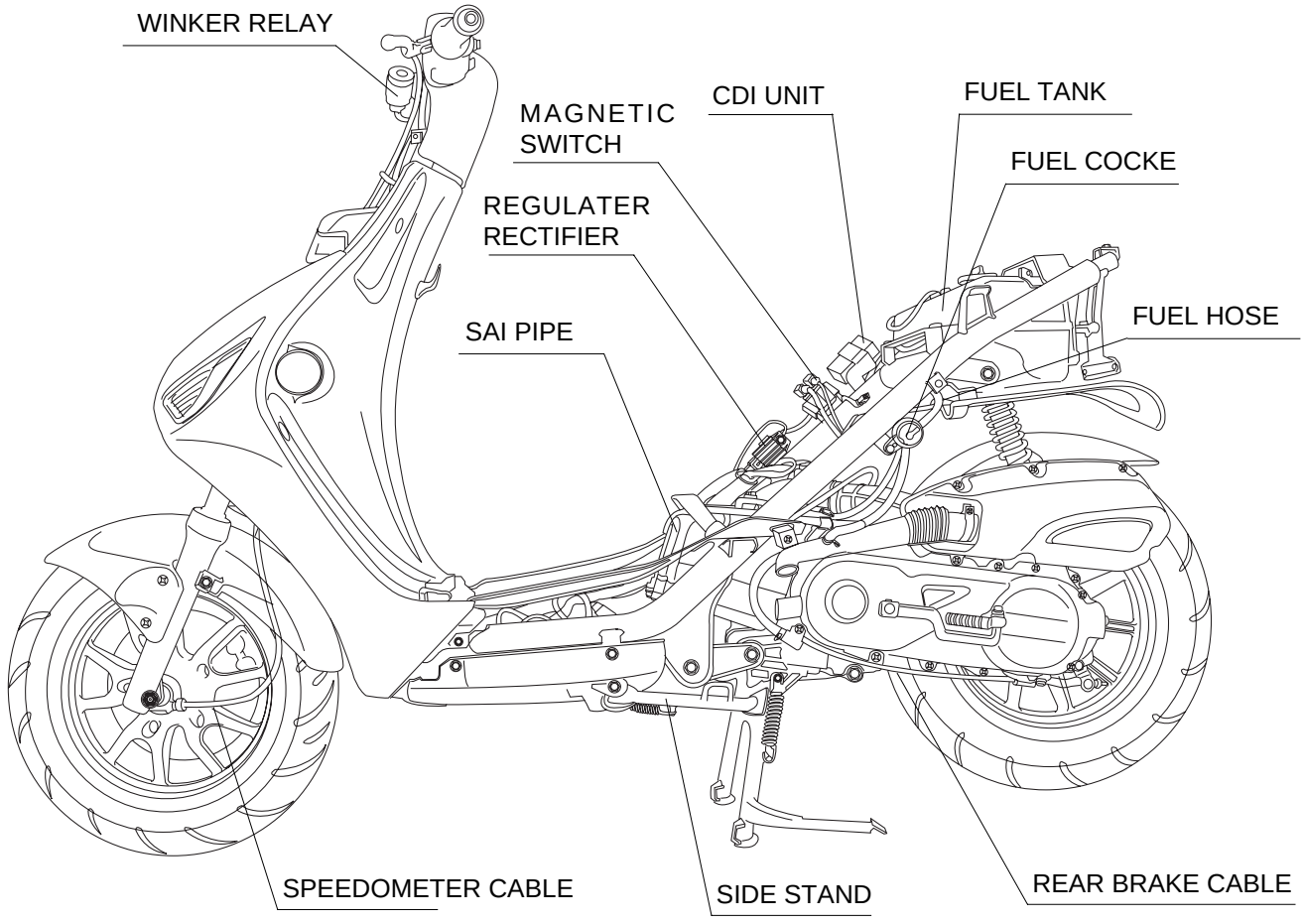
TOOL: REAR CUSHION COMPRESSOR
REAR CUSHION COMPRESSOR ATTACHMENT

INSTALLATION

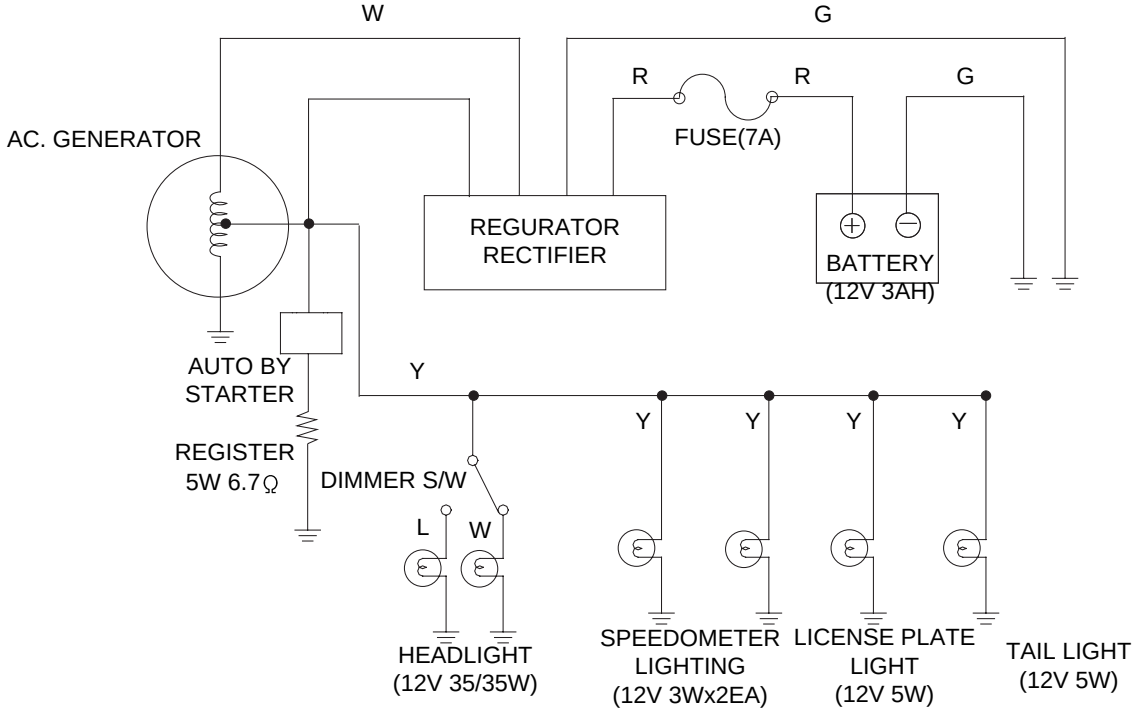
- Install the rear cushion.
- Tighten the cushion upper metal with securing bolts.

TORQUE: UPPER SIDE 4.0 kgf · m
LOWER SIDE 4.0 kgf · m

- Install in the reverse order of removal.



C H A R G I N G D I A G R A M



14. CHARGING SYSTEM

SERVICE INFORMATION · · · · · 14-1
TROUBLE SHOOTING · · · · · 14-2
BATTERY · · · · · · · · · · 14-3
CHARGING SYSTEM INSPECTION · 14-4
AC GENERATOR INSPECTION · 14-5
REGULATOR RECTIFIER INSPECTION · 14-5

SERVICE INFORMATION

WARNING

- Do not place flammable materials near battery when charging. This can be a fire hazard as hydrogen gas is created during charging battery.
- Do not allow battery acid to come into contact with clothes, skin or eyes. Battery acid contact can cause burns or loss of eye sight. If the contact occurs, thoroughly clean with water, and if acid enters eyes, flush with water and see a doctor.
- If battery acid gets on clothing, as it can seep through or make a hole through the clothing and make its way to the skin, make sure to change clothing that has come into contact with battery acid and wash the battery acid from the clothes.

CAUTION

- This vehicle has a maintenance-free(MF) battery. Because MF batteries use different charging equipment, take special care when performing maintenance and especially when replacing parts. Not all regular battery equipment is compatible with MF batteries.
- When charging the battery, remove the battery from the frame and do not open stopper.
- There is the possibility of damaging the regulator/rectifier, etc. if the terminal or coupler is separated/connected when electricity is over flowing through the electrical devices. Make sure to turn the main switch OFF when performing maintenance to the charging equipment.

- If the battery is allowed to repeatedly lose all its charge, is repeatedly over-charged, or if it is left in an un-charged state, the battery can be damaged, its life can be reduced, or it can lose some of its strength. It is important to note here that the battery will naturally last 2-3 years of normal use, and although it will re-charge, its load is reduced, leadign to a loss in battery strengh.
- It is possible for the battery to become overcharged from battery body load. If a battery cell becomes short-circuited and if a state develops where voltage is not created between the temrinals, the regulator will not operate and excessive voltage will develops where voltage is not created between the terminalsd, the regulator will not operate and excessive voltage will develop in the battery and normal cell electrolytes will decrease.
- If the vehicle is not used for a long period, make sure to change the battery every three months. If not so, the battery ability to store electricity is reduced.

SPECIFICATIONS

ITEM		STANDARD VALUE
BATTERY	Capacity	12V 6Ah
	Terminal to terminal voltage	12.6~13.0V
AC. GENERATOR	Charging coil resistance value(20℃)	0.5~1.5Ω
	Rpm at charging start	2,000rpm
Regulator Rectifier	Regulator voltage	14.5V /5.000rpm

TOOL

DIGITAL TESTER

PVA MULTI-TESTER

RPM TESTER

BATTERY TESTER

TROUBLE SHOOTING

No power(key turned on)

- Dead battery
  - Low fluid level
  - Complete discharged
- Disconnected battery cable
- Main fuse cut
- Faulty ignition switch

Low power(key turned on)

- Battery undercharged
  - Low fluid level
  - Battery discharged
- Charging system failure
- Loose battery connection

Low power(engine running)

- Battery undercharged
- Battery is failing
- Charging system failure

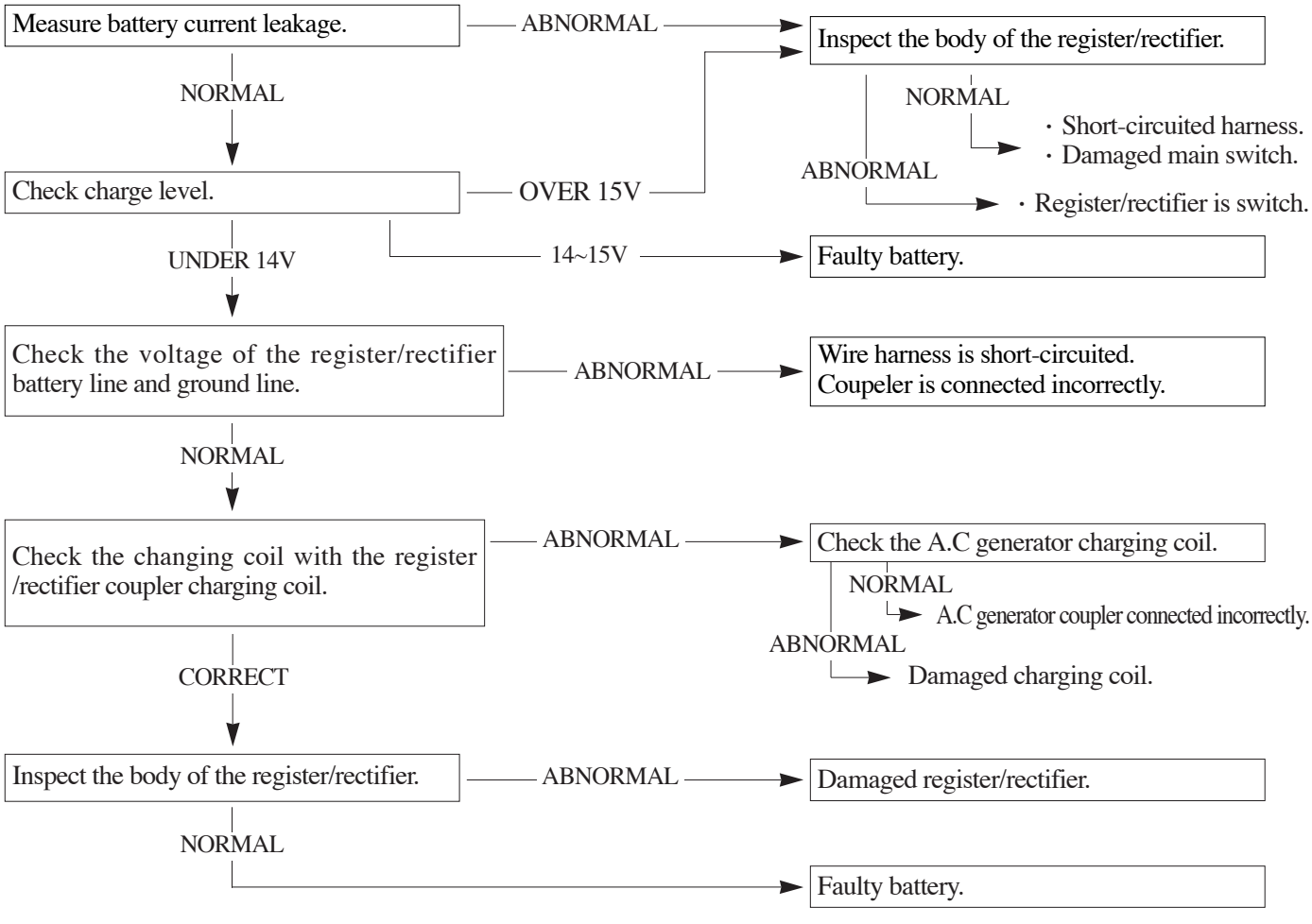
Intermittent power

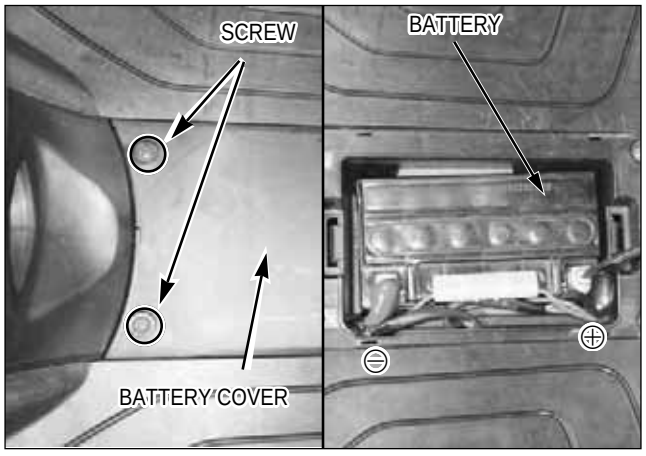
- Loose battery connection
- Loose charging system connection
- Loose starting systme connection
- Loose connection or short circuit in ignition system
- Loose connection or short circuit in lighting system

Charging system failure

- Loose, broken or short circuit wire or connection
- Faulty regulator rectifier
- Faulty A.C. Generator

CHARGING SYSTEM





BATTERY

- Loosen the screws and remove the battery cover.
- Disconnect the negative ⊖ battery cable first, and then disconnect the positive ⊕ cable.
- Remove the battery.
- Install in the reverse order of removal.

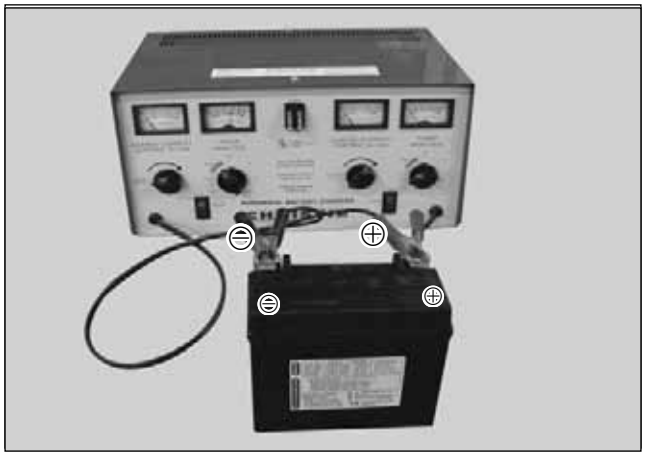
BATTERY(OPEN-CIRCUIT VOLTAGE) INSPECTION

- Remove the battery cover.
- Measure the voltage between the battery terminals.

FULL CHARGED : 12.6~13.0 V
INSUFFICIENTLY CHARGED : UNDER 12.3 V

NOTE

- Use a voltmeter that will accurately indicate 0.1V difference.
- When measuring the battery voltage after charging, leave it for at least 30 minutes, or the accurate results cannot be obtained because the battery voltage fluctuates just after charging.

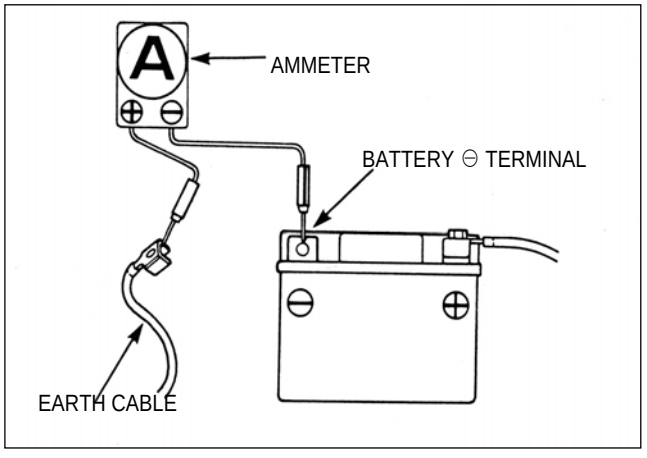


BATTERY CHARGING

- Remove the battery.
- Connect the charging ⊕ cable and battery ⊕ terminal.
- Connect the charging ⊖ cable and battery ⊖ terminal.

NOTE

- Be sure to the battery charging is not allow to exceed the specified charging time and current.
- To avoid the rapid charging could be possible to reduce the battery life and cause of damage.

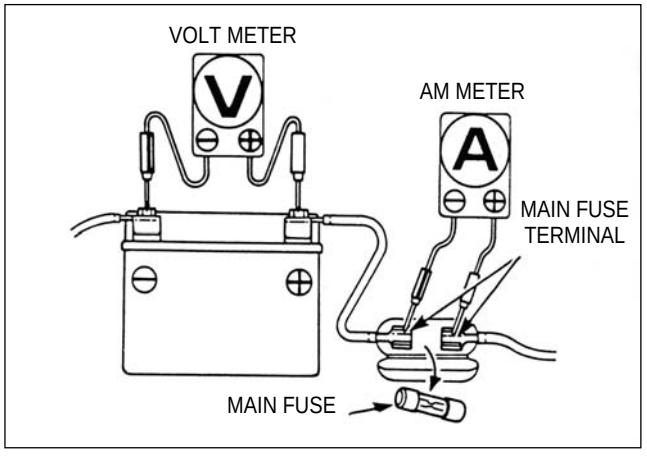


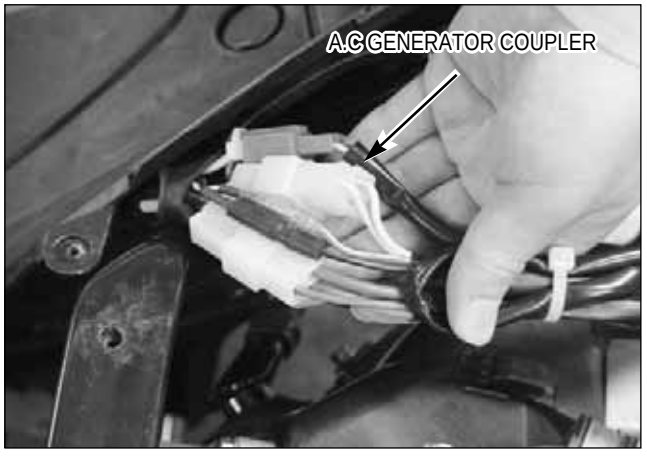
CHARGING SYSTEM INSPECTION

LEAK TEST

- Turn off the ignition switch, and disconnect the ground ⊖ cable from the battery.
- Connect an ampere meter between negative ⊖ terminal and ground cable.
- With the ignition switch off, measure the leakage current.

LEAK CURRENT : 0.1A(BELOW)





CAUTION

- Current flow larger than the range selected may blow out the fuse in the tester.
- While measuring current, do not turn the ignition on. A sudden surge of current may blow out the fuse in the tester.

CHARGING VOLTAGE INSPECTION

CAUTION

- Be sure that the battery is fully charged before performing this test. The amount of current flow may change abruptly if not sufficiently charged. Use a battery whose voltage between its terminals is 12.6~13.0V.
- When engine is started using the starter motor, a large amount of current may flow from the battery temporarily. Use the kick starter to start the engine.
- If the probes are connected in reverse order, the registered current flow direction when charging and discharging the battery will be reversed as well.

- Connect a tester between the battery terminals.
- Remove the main fuse and connect an ampere meter between the terminals.
- Connect a RPM tester to the high-tension cord.
- Gradually increase the engine speed and measure the charging voltage and charging current.
  CHARGING CURRENT: 2.0~2.5A/3,000RPM
  CONTROL VOLTAGE: 14.5±0.5V/5,000 RPM

CAUTION

- Take precaution not to control the tester or wiring when flowing the current.
- It can cause the damage for the other parts by overflowing the current.

- Install in the reverse order of removal.

A.C GENERATOR INSPECTION

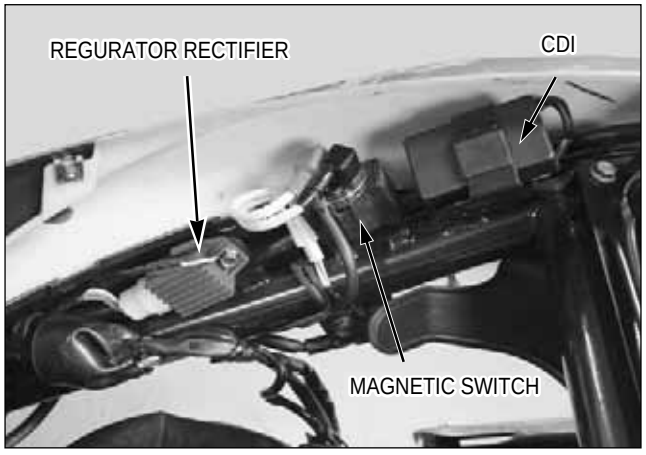
- Disconnect the coupler of the A.C generator cord.

- Measure the resistance between the yellow and white lead.
- If the resistance values are much larger than the specified value, or if there is continuity between terminals and earth terminals, replace the stator with a new one.

RESISTANCE VALUE: 0.5~1.5Ω (20°C)

REGULATOR RECTIFIER INSPECTION

- Remove the regulator rectifier coupler.

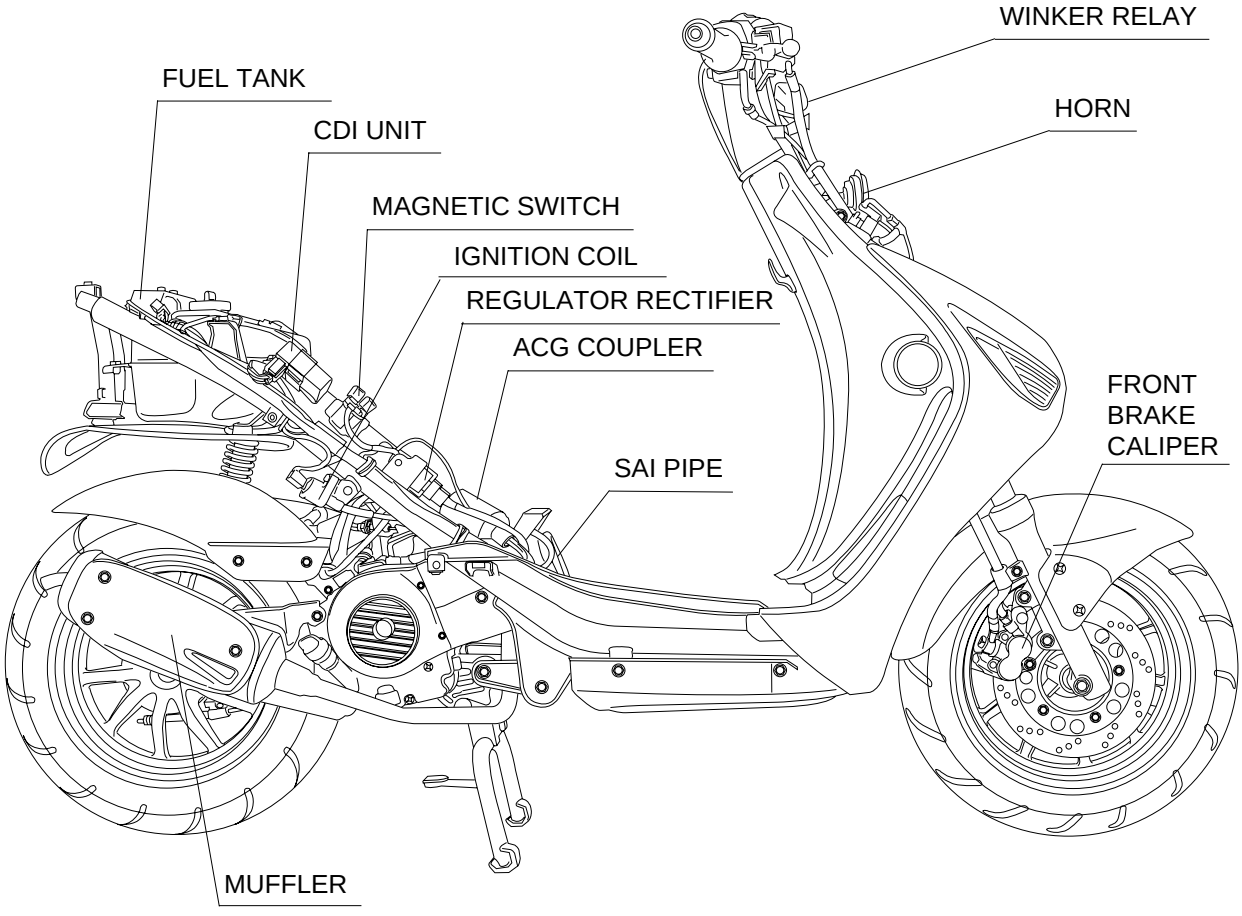


- Measure the resistance between each terminal.

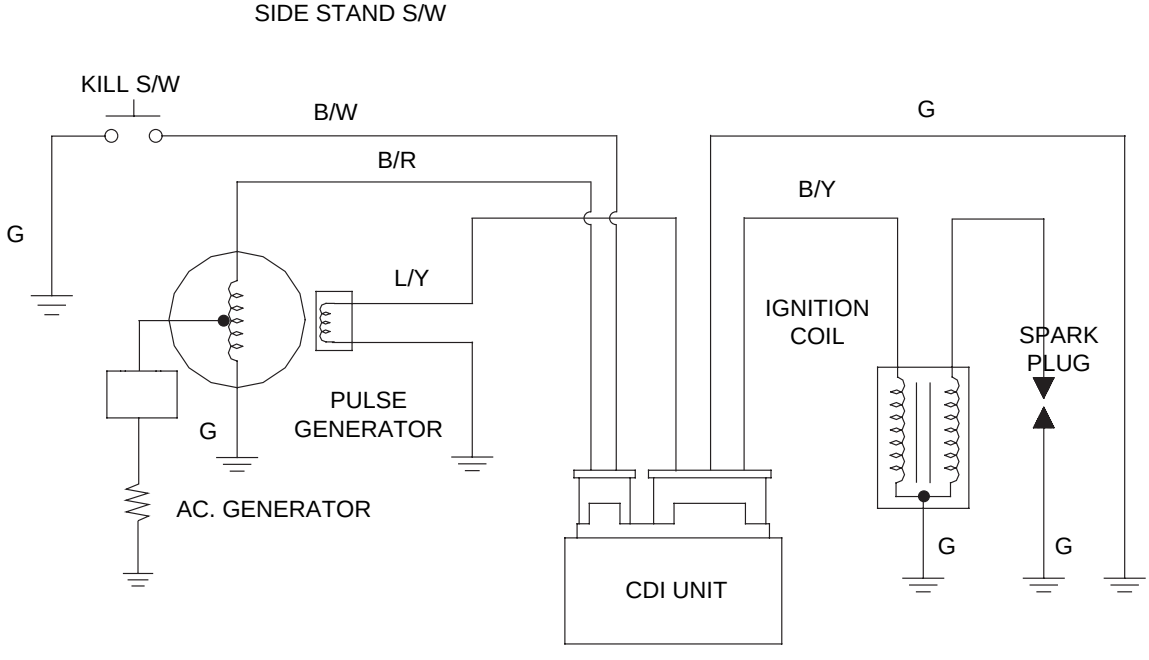
Unit : MΩ (20°C)

	R	Y	W	G
R			4.95	∞
Y				13.94
W				1,248
G	2,751		1,248	

- If the resistance between each terminal are bbnormal, replce it.



I G N I T I O N S Y S T E M



15. IGNITION SYSTEM

SERVICE INFORMATION · · · · 15-1
TROUBLE SHOOTING · · · · 15-2
CDI UNIT INSPECTION · · · · 15-3
PULSE GENERATOR INSPECTION · 15-3
IGNITION COIL INSPECTION · · 15-4

SERVICE INFORMATION

GENERAL SAFETY

- Follow the steps described in the troubleshooting flow chart when servicing the igntion system
- The CDI unit may be damaged, if dropped
- If the connector is disconnected when the current is flowing, the exeecessive voltage may damage the unit
- Always turn off the ignition switch before servicing
- The CDI unit use an electrically controlled ignition timing system. No adjustments can be made to the ignition timing.
- Use spark plug of the correct heat range. Using spark plug with an incorrect heat range can damage the engine.
- Connect the same color cords. Pay particular attention to colors prior to removing wiring. Connect the same color couplers.
- A faulty igintion system is often related to poorly connected connectors. Check those connections before proceeding
- This manual gives explanations on inspections to receive peak voltage. As inspections for coil resistance values are also included, it may be difficult to make a correct determination
- Conduct inspection on the main switch by referring to the wiring system continuity chart. (⇨19-1)

GENERAL SAFETY

ITEM			STANDARD VALUE
IGNITION COIL RESISTANCE VALUE 20℃	PRIMARY COIL		0.1~0.5Ω
	SECONDARY COIL	WITH PLUG CAP	6.5~9.8kΩ
		WITHOUT PLUG CAP	2.7~3.5kΩ
PULSE GENERATOR COIL RESISTANCE VALUE 20℃			50~200Ω
SPARK PLUG			CR6HSA
SPARK PLUG GAP			0.6~0.7mm

TOOL

MULTI TESTER
PVA MULTI-TESTER

TROUBLE SHOOTING

Spark plug does not emit sparks.

UNUSUAL CONDITION		POSSIBLE CAUSES (START FROM 1 AND GO THROUGH LIST IN ORDER)
IGNITION COIL PRIMARY VOLTAGE	Low peak voltage.	1. Cranking speed is low. – Battery is low or kick power is weak. 2. Poorly connected connectors or an open circuit in ignition system 3. Faulty ignition coil 4. Faulty CDI unit(in case when above No. 1~4 are normal)
	No peak voltage.	1. Incorrect peak voltage adaptor connections. 2. Faulty ignition switch. 3. Loose or poorly connected CDI unit connector. 4. Open circuit or poor connection in ground cord of the CDI unit. 5. Faulty CDI unit(in case when above No.1~5 are normal)
	Peak voltage is normal, nut no spark jump at plug.	1. Faulty spark plug or leaking ignition coil secondary current ampere 2. Faulty ignition coil.
EXCITE COIL	Low peak voltage.	1. Cranking speed is too slow - Battery is undercharged(or operating force of the kick starter is weak)
PULSE GENERATOR	No peak voltage.	1. Cranking speed is too slow - Battery is undercharged(or operating force of the kick starter is weak)

CDI UNIT INSPECTION

CDI IGNITION CIRCUIT INSPECTION

NOTE

• Follow the step described in the troubleshooting flow chart when servicing the ignition system.

- Remove the front cover.
- Disconnect the coupler from the CDI unit, and check the ignition system circuits from the wiring coupler side.

INSPECTION ITEMS

ITEM	INSPECTION	JUDGEMENT
EXCITE INPUT VOLTAGE	Check that there is battery voltage between main switch wire(black/red)and ground wire when the ignition is ON	PVA 225 ± 25V
PULSE GERNERATOR	Check that the resistance of coil (between white/red and green)is within specified range	OVER 1.5V
IGNITION (PRIMARY)COIL	Check that the resistance of coil (between black/ yellow and green) is within the specified range.(0.1~0.5 Ω)	225 ± 25V
GROUND WIRE	Check continuity between ground and frame	Continuoty

- If there is no CDI output voltage, because CDI is faulty, replace it.
  TOOLS: MULTI- TESTER

NOTE

• Read tester manual carefully prior to using the tester.

- Install in the reverse order of removal.

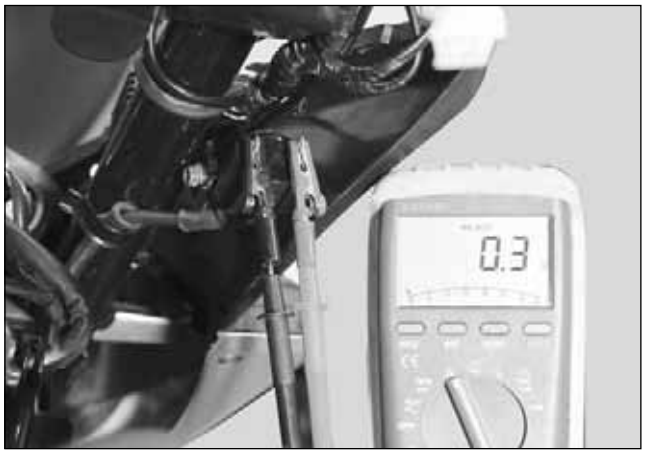
PULSE GENERATOR INSPECTION

RESISTANCE MEASUREMENT

- Release the seat lock with the main key.
- Remove the luggage box(3-2).
- Disconnect the A.C generator 3P coupler and black/red and white/red wire connector.
- Measure the resistance between the blue and yellow and engine ground.
  STANDARD VALUE: 50~200Ω (20°C)

PVC MEASUREMENT

- Disconnect the A.C generator blue/yellow wire connector.
- Connect the peak voltage adaptor probes to the pulse generator wire terminal of the wire harness side connector and ground.
- Crank the engine with the lick starter or starter motor and measure the peak voltage of pulse generator.
  PEAK VOLTAGE: OVER 1.5 V
  TOOL: PVA MULTI TESTER
- Install in the reverse order of removal.

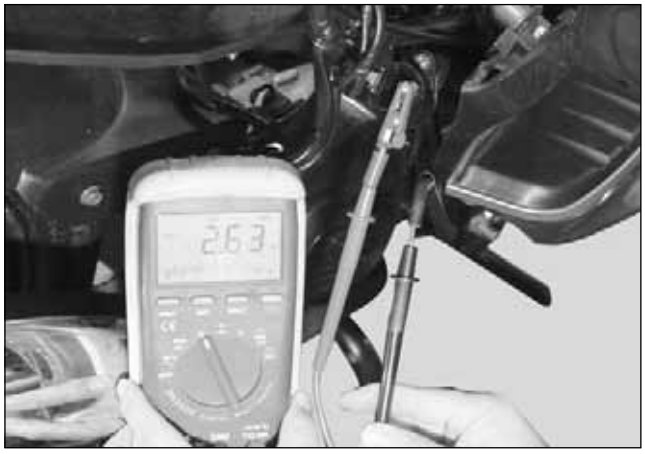


IGNITION COIL INSPECTION

- Remove the luggage box(⇨3 - 2)
- Remove the primary wire.

NOTE

• Since the resistance value of primary coil is inherently very small, it is difficult to distinguish it from a shorted wire.



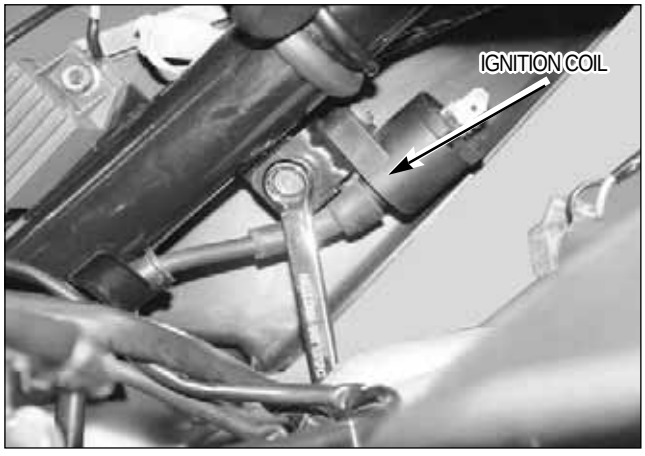
- Measure the peak voltage of the ignition coil primary side first.
- If the resistance value is withtin the specified range the coil is good.
- It resistance ∞ (infinite), replace the coil with a new one

  STANDARD VALUE: 0.1~0.5Ω

- Remove spark plug cap from plug.
- On condition that there is plug cap, measure the resistance between plug cap and the primary terminal.
- If the resistance shows ∞ (open wire), pull out plug cap and measure the secondary resistance.

  STANDARD VALUE : 6.5~9.8 kΩ
- Measure resistance between the primary coil terminal and high-tension cord.
- If the resistance is ∞ (open wire), replace the coil with a new one.

  STANDARD VALUE : 2.7~3.5 kΩ



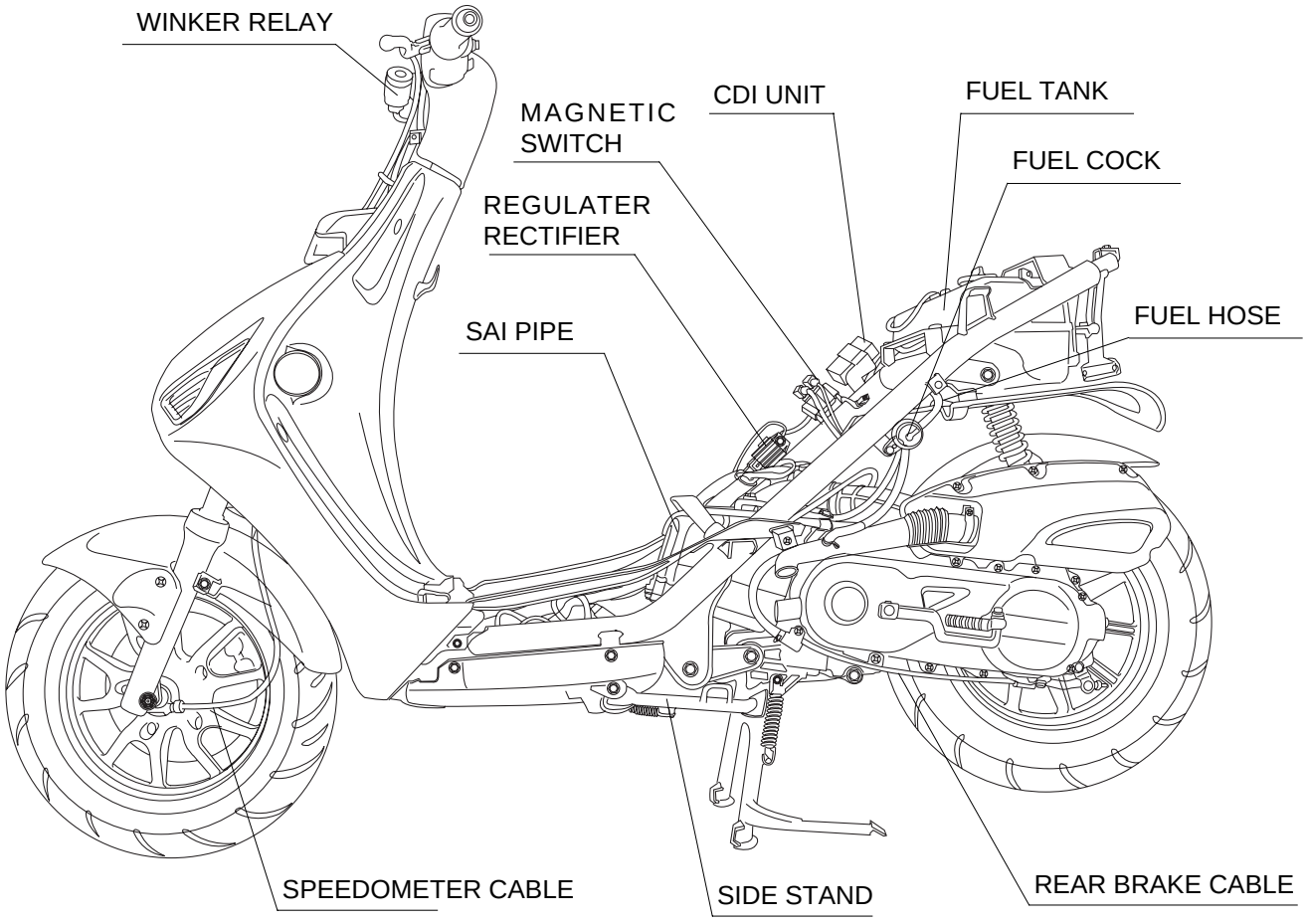
- Check the primpary voltage of ignition coil.
- On condition that iginition cord is connected, connect the peak voltage adaptor(+) cord to green terminal, and (-) cord to black terminal. Then start vehicle and check.

  STANDARD VALUE : 100~250V

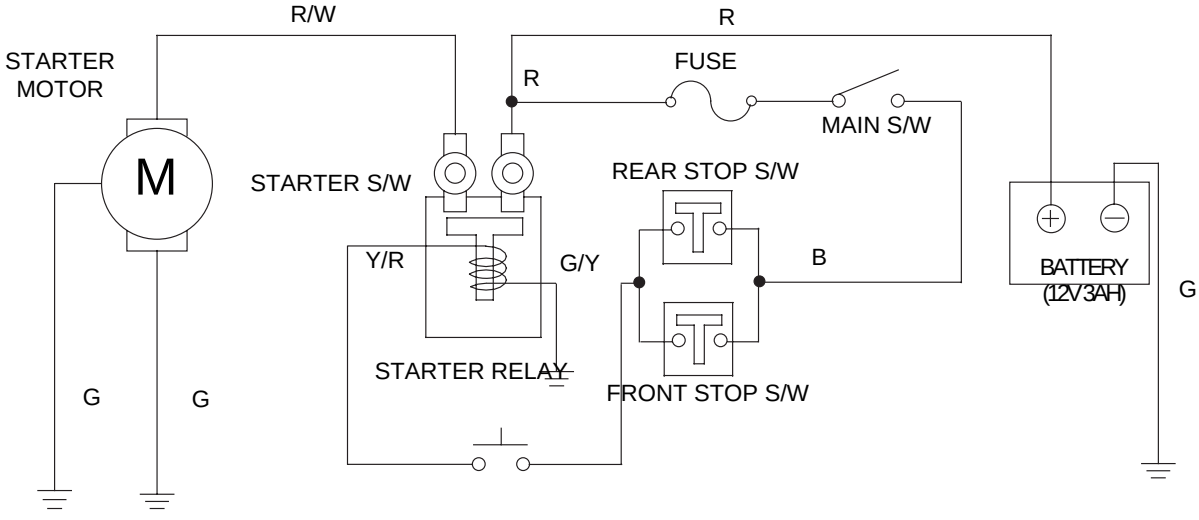
REPLACEMENT

- Remove the high-tension cord from the plug, remove the plug cap.
- Remove the wire from the ignition coil.
- Remove the primary wire from the ignition coil.
- Loosen the ignition coil fixing bolt securing the frame, remove the ignition coil.
- Install in the reverse order of removal.

MEMO



S T A R T E R S Y S T E M C I R C U I T



16. STARTING SYSTEM

SERVICE INFORMATION · · · · 16-1
TROUBLE SHOOTING · · · · 16-2
STARTER MOTOR · · · · · · 16-3
STARTER MAGNETIC SWITCH · 16-6

SERVICE INFORMATION

GENERAL SAFETY

- The starter motor can be maintained without removing the engine from the vehicle.
- Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.
- A weak battery mau be unable to turn the starter motor quickly enough, or, supply adequete ignition current
- The starter motor may be damaged if current is allowed to flow to it when the engine cannot turn over.
- The engine may not be turned over if the stop switch is faulty.

SPECIFICATION

ITEM	STANDARD VALUE	SERVICE LIMIT
STARTER MOTOR BRUSH LENGTH	11.0~11.05	6.5mm

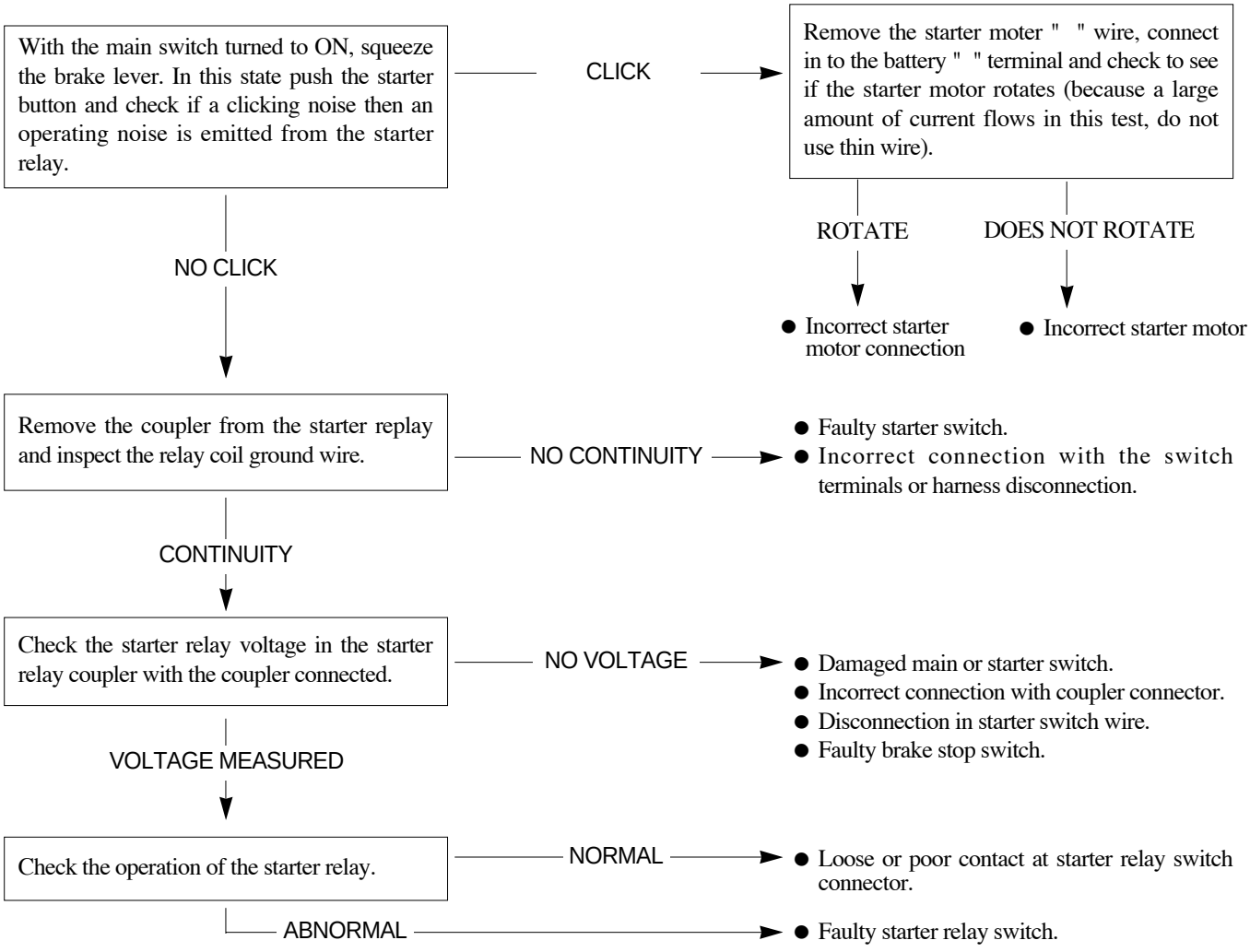
TOOL

MULTI-TESTER
VERNIER CALIPER

TROUBLE SHOOTING

Starter motor does not rotate (No response from starter motor).

- Check to see if the fuse is burned out.
- Check to turn on the lamp of stop switch.


With the main switch turned to ON, squeeze the brake lever. In this state push the starter button and check if a clicking noise then an operating noise is emitted from the starter relay.
CLICK
Remove the starter moter " " wire, connect in to the battery " " terminal and check to see if the starter motor rotates (because a large amount of current flows in this test, do not use thin wire).
ROTATE
DOES NOT ROTATE
● Incorrect starter motor connection
● Incorrect starter motor
NO CLICK
Remove the coupler from the starter replay and inspect the relay coil ground wire.
NO CONTINUITY
● Faulty starter switch.
● Incorrect connection with the switch terminals or harness disconnection.
CONTINUITY
Check the starter relay voltage in the starter relay coupler with the coupler connected.
NO VOLTAGE
● Damaged main or starter switch.
● Incorrect connection with coupler connector.
● Disconnection in starter switch wire.
● Faulty brake stop switch.
VOLTAGE MEASURED
Check the operation of the starter relay.
NORMAL
● Loose or poor contact at starter relay switch connector.
ABNORMAL
● Faulty starter relay switch.

Starter motor rotates but crank shaft does't

- Incorrect starting clutch.
- Incorrect starter gear.
- Starting clutch slip.

Starter motor operates in free-wheel

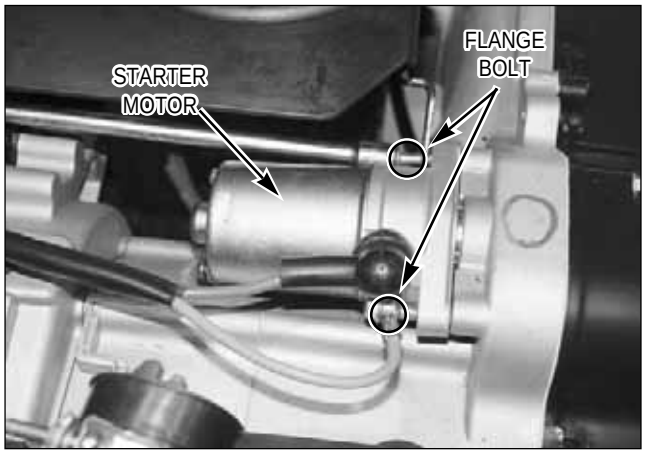
- Internal fault of starter motor.
- Driven gear slips.

Weak rotational power in starter motor

- Battery is insufficiently charged.
- Incorrect connection of battery terminal cord.
- Damaged starter motor.
- Ground wire is connected incorrectly
- Brush is damaged or worn.

Starter motor and crank shaft rotate but dose not turn engine over.

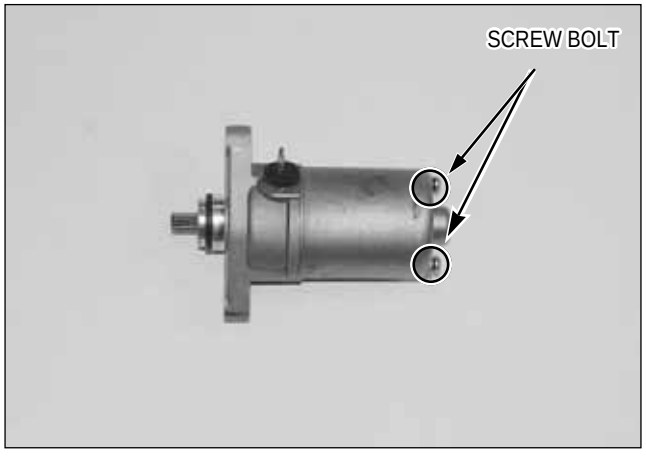
- Incorrect starting system.
- Faulty engine.



STARTER MOTOR

REMOVAL

- Release the seat lock with the main key.
- Remove the luggage box.
- Remove the starter motor cable from the stater magnetic switch.
- Loosen the 2 flange bolts securing the engine case, remove the battery earth cable and starter motor.
- Remove the starter motor.
- Install in the reverse order of removal.

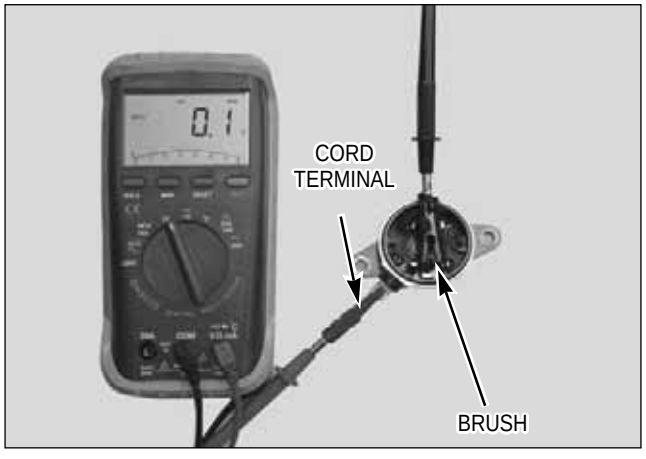


CAUTION

- Always turn the ignition switch OFF before servicing the starter motor. The motor could suddenly start, causing serious injury.
- Accurately tighten the battery earth cable.

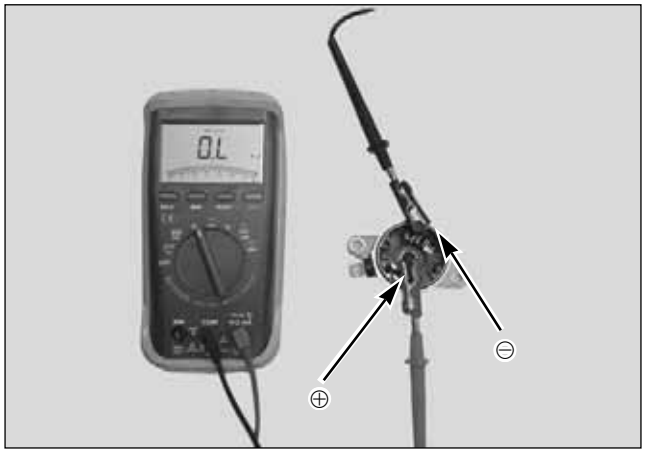
DISASSEMBLY

- Remove the starter motor cable.
- Before diassembling the starter motor mark the position of the case and cover so the starter can be assembled correctly later.
- Loosen the starter motor case bolts and remove the motor cover.

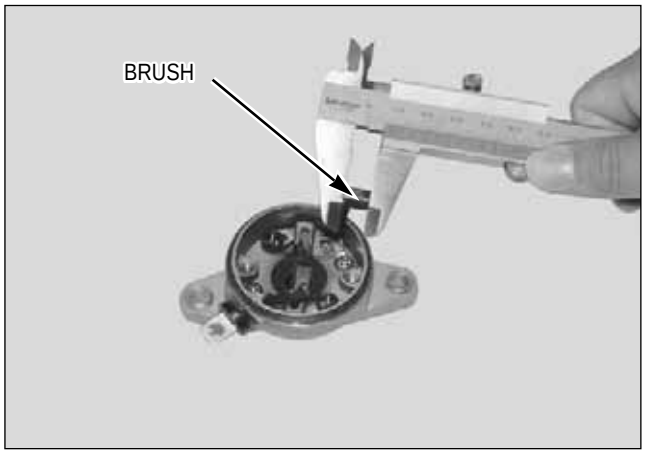


INSPECTION

- Check whether worn and damaged on stater motor.
- Check continuity between ⊕ brush and the terminal of cable cord.
- If continuity can be done, it shows normal.



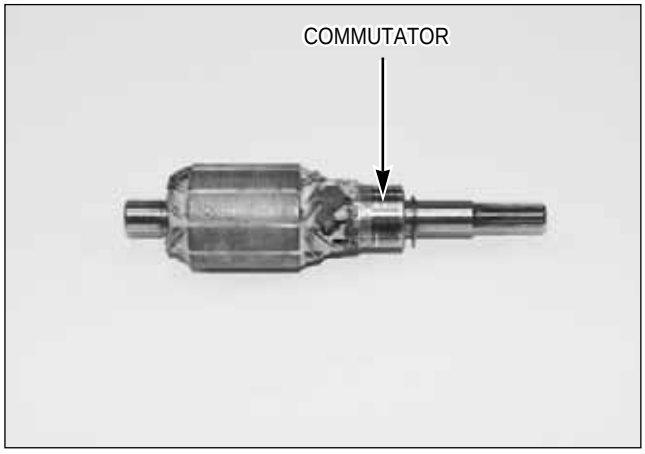
- Check the continuity of ⊕ and ⊖ of brush holder.
- If continuity can not be done, it shows normal.



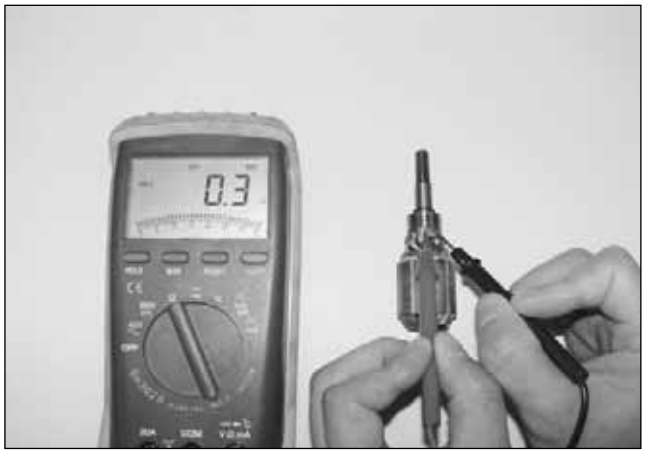
- the brush spring, and then remove the brush.
- Measure the brush length. Replace the brush if it is worn beyond the service limit.
  SERVICE LIMIT: 6.5 MM

NOTE

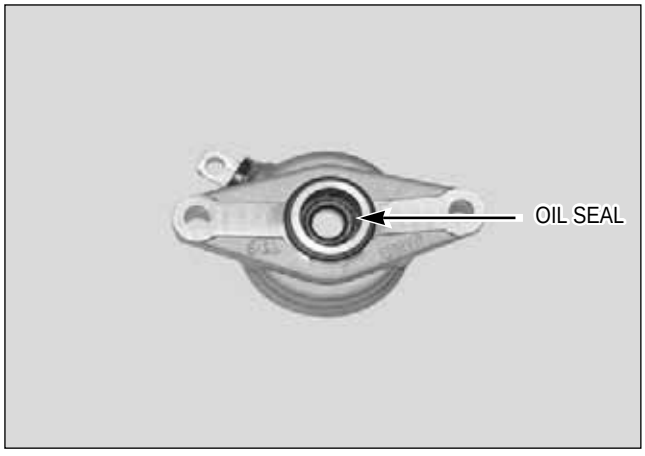
• If replacement, replace with a brush holder set.



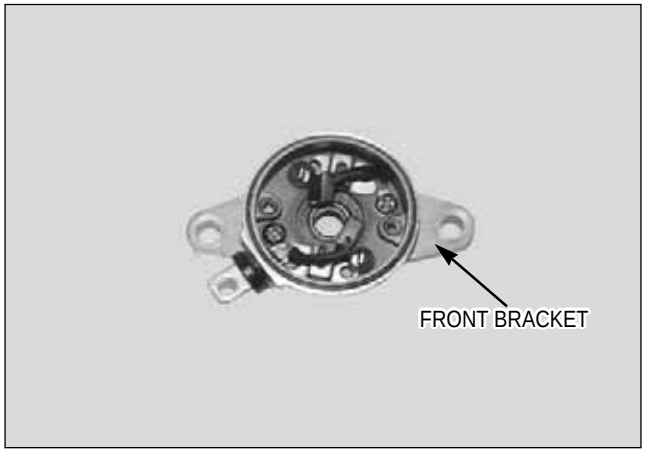
- Check the commutator for
  - Damage or abnormal wear. → Replace with a new one.
  - Discoloration of the commuttor bar. → Replace with a ne one.
  - Metalic debris between commutator bars → Clean it off



- For continuity between pairs of commutator bars.
  - Make a continuity check between individual commutator bars and the armature shaft.
  - There should be no continuity.



- Check the needle bearing and oil seal.
  - Do not rotate smoothly. → Replace with a new one.
  - Damage oil seal. → Replace with a new one.



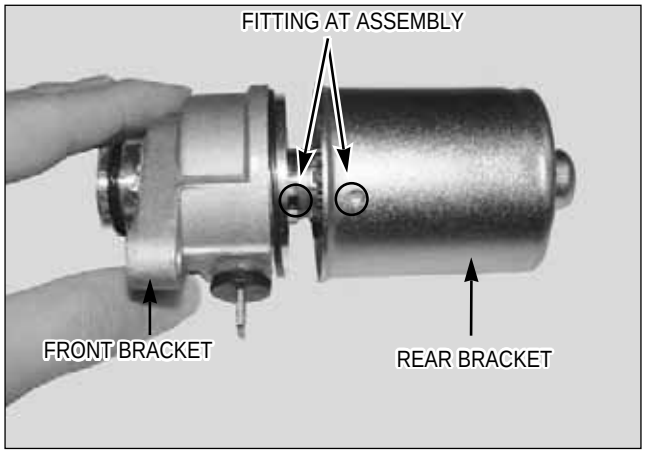
STARTER MOTOR ASSEMBLY

- Install the brush and brush spring to the brush hold set.
- Apply grease to both ends of the armature shaft, and install the 2 washers.

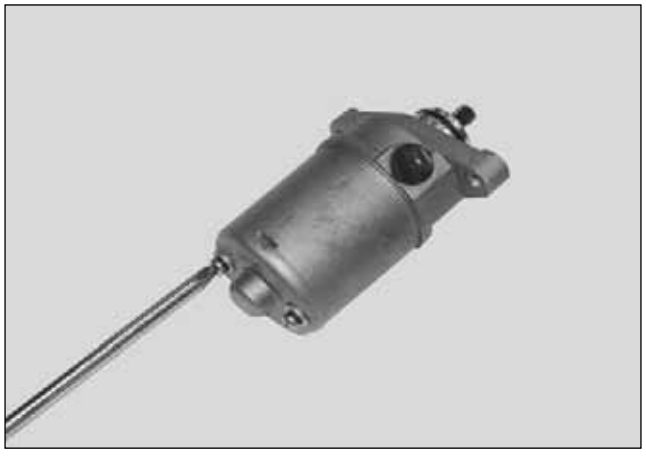
- Push the brush, and insert the armature into the rear bracket groove.

CAUTION

- The sliding surfaces of the brushes can be damaged if they are not installed properly.
- When inserting the amature into the case, hold the amature tightly to keep the magnet from pulling the amature against the case.



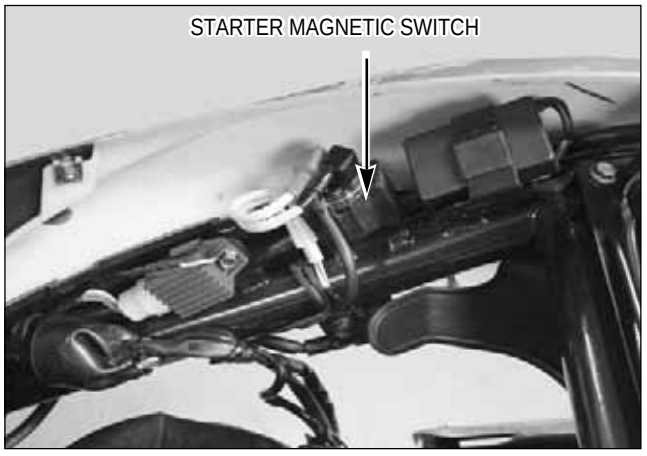
- Assemble rear bracket
- Assemble front bracket aligning york.



- Tighten the 2 set bolts.

NOTE

- When installing the cover, take care to prevent damaging the oil seal lip with the shaft.
- Overtigntening the starter motor cable terminal nuts may cause the inside the starter motor, resulting in serious damage to the inner connectors.



STARTER MAGNETIC SWITCH

REMOVAL

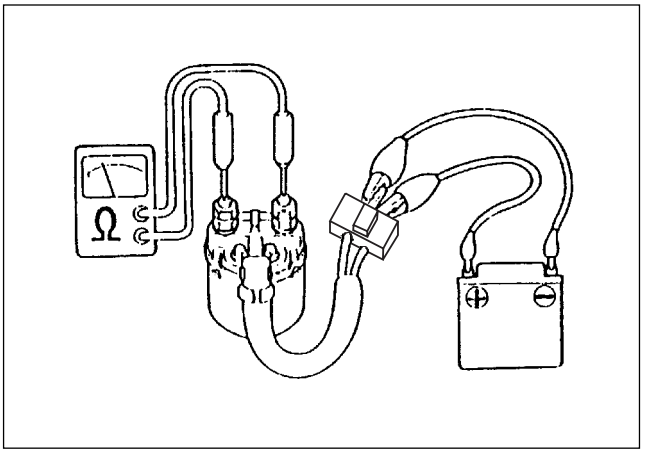
- Remove the luggage box.
- Remove the battery (+) cable from the starter magnetic switch terminal.
- Remove the starter motor cable from the starter magnetic switch terminal.
- Disconnect the coupler connected to wire harness, and starter magnetic switch.

INSPECTION

- Check if the starter magnetic switch “click” when it is turened ON.
  - Click but the engine does not start.
  → Poorly connected battery terminal and motor terminal of the switch. (Check the starter magnetic switch)
  - No click → No starter magnetic switch input voltage. (Faulty relay ground line and starter magnetic switch)

STARTER MAGNETIC SWITCH VOLTAGE

- Measure the voltage between the yellow / red wire (+) and ground at the starter magnetic switch connector.
- If battery voltage appears only when the starter switch is pressed, it is normal.
- Check the resistance between terminals of starter magnetic switch.



OPERATION CHECK

- Disconnect the magnetic switch wire connector.
- Apply battery voltage between trminals, when the yellow / Red wire is connected to the positive (+) battery terminal and the yellow / Green wire to the negative (-) battery terminal. If there is continuity between battery and motor terminal, it is normal.
- Install in the reverse order of removal.

17. LIGHTS// SWITCHES / HORN

SERVICE INFORMATION · · · · · 17-1	SPEEDOMETER · · · · · · · · · 17-3
TROUBLE SHOOTING · · · · · · 17-1	MAIN SWITCH · · · · · · · · · 17-4
HEADLIGHT BULB REPLACEMENT · 17-2	HANDLE BAR SWITCH · · · · · · 17-4
FRONT WINKER · · · · · · · · 17-2	HORN · · · · · · · · · · · · · 17-5
REAR COMBINATION LIGHT · · 17-3	FRONT/REAR STOP SWITCH · · · 17-5
REAR WINKER · · · · · · · · · 17-3	FUEL UNIT · · · · · · · · · · · 17-6

SERVICE INFORMATION

GENERAL SAFETY

- Connect the same color wires together. Connect couplers carrying the same color and the same number of pins together.
- All couplers are equipped with tabs which can be locked. Remove these locks prior to disassembling ; and insert these tabs all the way until locked when assembling
- Carry out continuity test on circuits or parts to diagnose electric systems. The continuity test on normal parts can be carried out without removing the parts from the vehicle. Simply disconnect the wires and connect a continuity tester or and ohmmeter to the coupler terminal or connectors.
- The continuity test is conducted to check if electric power is connected between 2 terminals. If these is coil resistance within circuits, or to check the large resistance resulting from the connector corrosion, an ohmmeter is required to check the circuit resistance value.

TROUBLE SHOOTING

Light not turned on when the main switch is ON
- Faulty light bulb
- Faulty switch
- Faulty or disconnected wiring
- Fuse cut
- Battery discharged

Dim headlight
- Battery discharged
- Wiring and switch resistance high

Headlight Hi-low beam can not be charged
- Faulty light bulb
- Faulty dimmer switch.

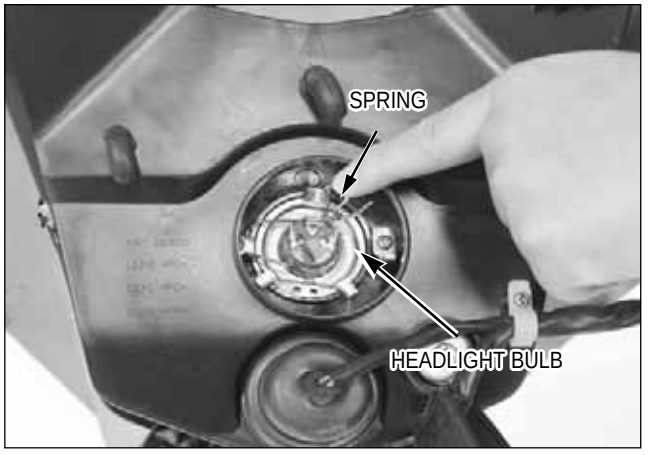
Fuel meter indicator malfunctioning
- Coupler separated
- Harness disconnected
- Float operation malfunction
- Fuel unit damaged

Fuel meter needle unstable
- Coupler loose
- Fuel unit damaged
- Meter damaged

HEADLIGHT BULB

REMOVAL

- Remove the front under cover.
- Disconnect the headlight wiring.
- Loosen the 4 setting bolts securing the front cover.
- Remove the headlight assembly.
- Install in the reverse order of removal.

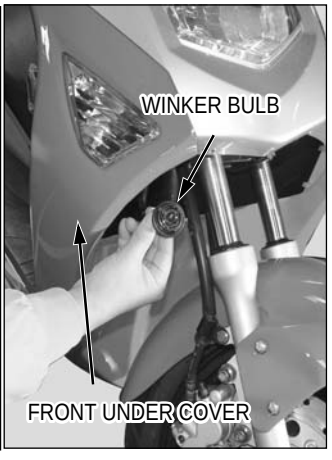


BULB REPLACEMENT

- Pull off the headlight socket..
- Replace with a new bulb.
- Install in the reverse order of removal.

CAUTION

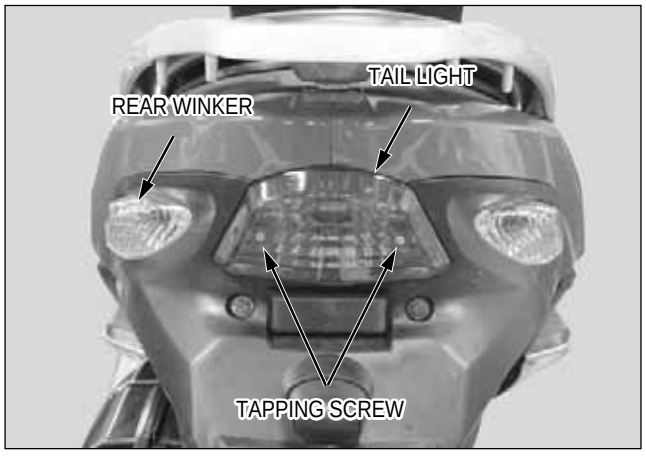
- Headlight bulbs become very hot while the headlight is ON, and remain hot for a while after they are turned OFF. Be sure to turn the ignition switch OFF and let the bulb cool down before replacement.
- If you touch the bulb with your bare hands, clean it with a cloth moistened with denatured alcohol to prevent early bulb failrure.
- Avoid touching Halogen headlight bulb. Finger prints can create hot spots that cause a bulb to breake.
- Be sure to install the dust cover after replacing the bulb.



FRONT WINKER

BULB REPLACEMENT

- Remove the front handle cover.
- Remove the bulb from the socket and replace with a new bulb.
- Install in the reverse order of removal.



REAR COMBINATION LIGHT

BULB REPLACEMENT

- Loosen the 2 taillight lens tapping screws of the rear combination light.
- Pull off the tailight lens and remove it from the groove.
- Remove the bulb from the socket and replace with a new bulb.
- Install in the reverse order of removal.

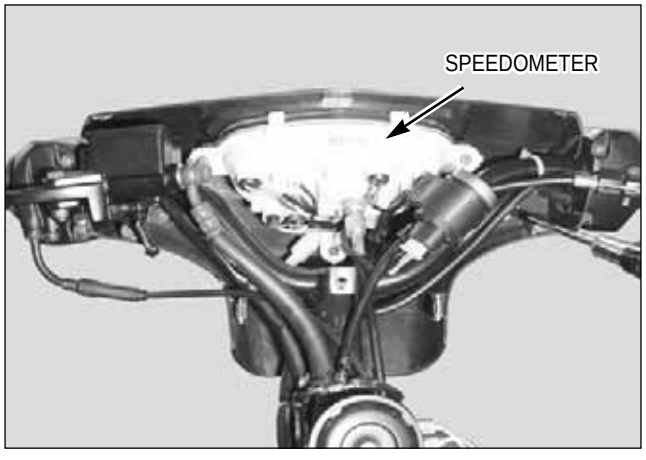
CAUTION

- Do not apply excessive force when removing the lens.
- Check the installation of the tail light and lens seal accurately.

REAR WINKER

BULB REPLACEMENT

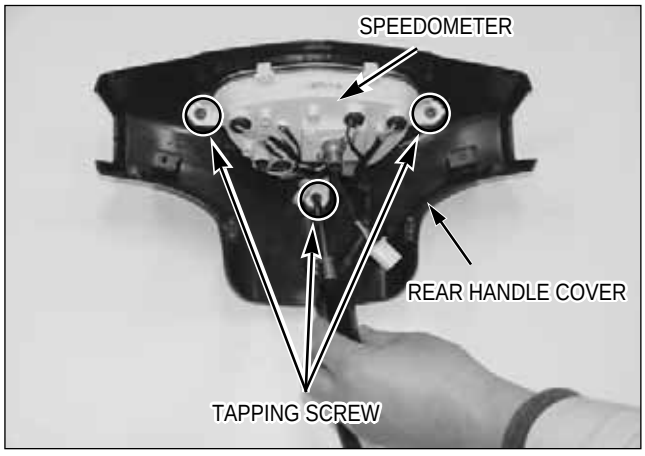
- Remove the tailihgt lens.
- Remove the winker lens.
- Remove the bulb from the socket and replace with a new bulb.



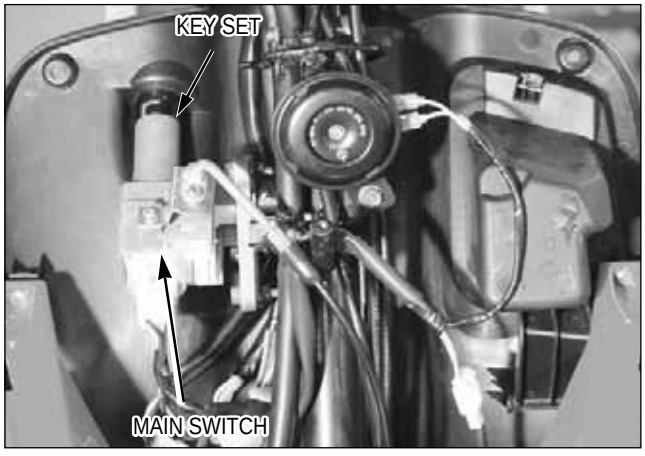
SPEEDOMETER

REMOVAL

- Remove the front handle cover.
- Remove the wiring coupler and speedometer cable.
- Remove the winker relay, horn, wiring coupler.
- Remove the speedometer wiring coupler of the frame from the clamp and then remove the coupler connected with wire harness.



- Disconnect the RH./LH.switch wire and remove the speedometer and the 3 tapping screws securing the rear handle cover.
- Remove the speedometer.
- Install in the reverse order of removal.



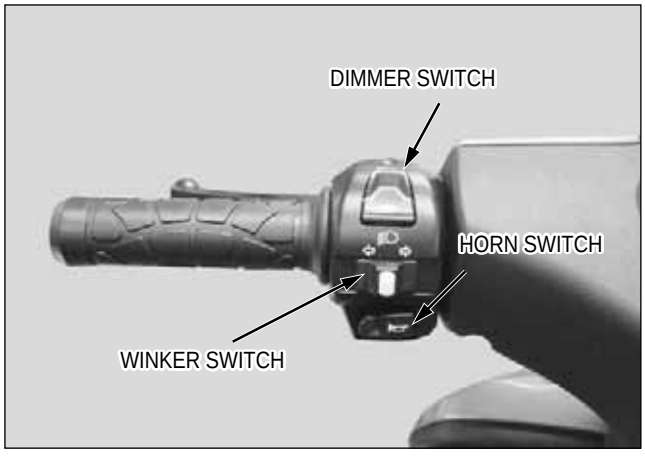
MAIN SWITCH

- Remove the front cover.
- Remove the main switch coupler.
- Check for continuity betwwen the wire terminal

TERMINAL	IG	E	BA1	BA2
ON			○	○
OFF	○	○		
LOCK	○	○		
COLOR	BLACK/WHITE	GREEN	RED	BLACK

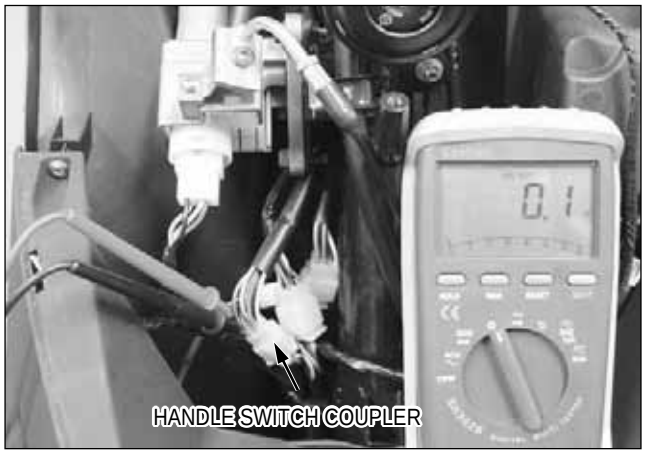
HANDLE BAR SWITCH

- Remove the front handle cover.
- Remove the coupler wiring.
- Check for continuity between trminal.



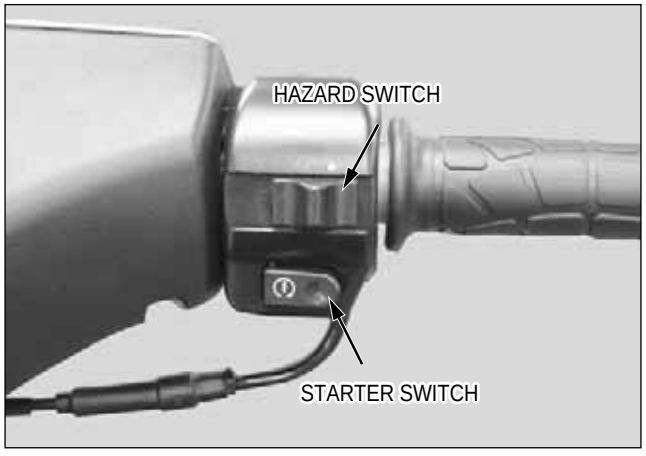
WINKER SWITCH

	W	R	L
R	○	○	
N			
L	○		○
COLOR	GRAY	SKY BLUE	ORANGE



DIMMER SWITCH

	BAT3	HI	LO
HI	○———	———○	
(N)	○———	———○	———○
LO	○———		———○
COLOR	DG/Y	BLUE	PURPLE

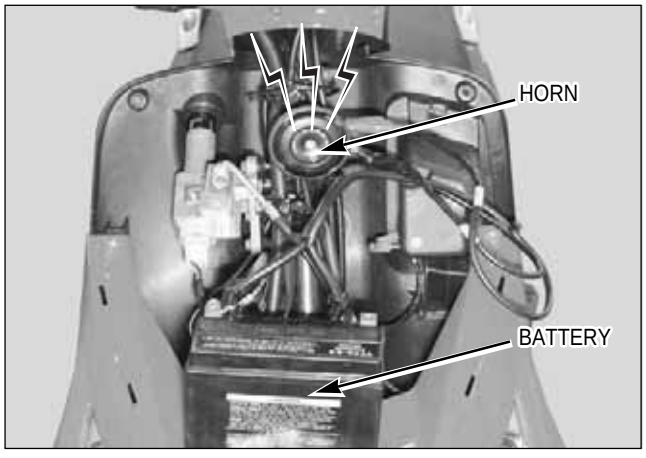


HAZARD SWITCH

	HAZARD		
	W	R	L
OFF			
HAZARD	○———	———○	———○
COLOR	GRAY	SKY BLUE	ORANGE

STARTER SWITCH

	ST	E
FREE		
PUSH	○———	———○
COLOR	YELLOW/RED	GREEN/YELLOW



HORN

- Remove the wire connector from the horn.
- Connect the horn terminal with 12V battery. Normal if it sounds

HORN SWITCH

	HO	BAT2
FREE		
PUSH	○———	———○
COLOR	LIGHT GREEN	BLACK

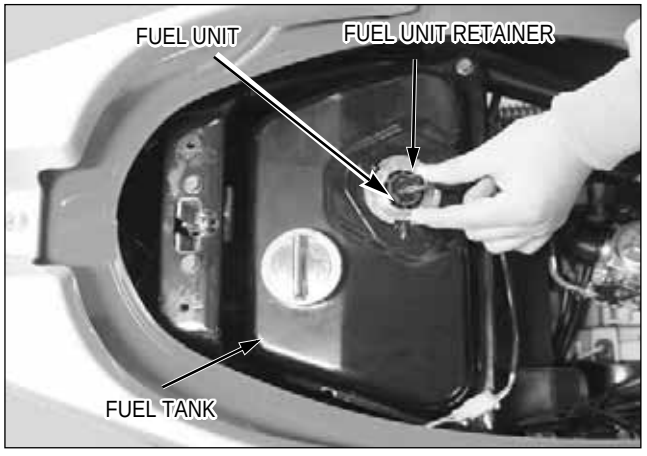
FRONT / REAR STOP SWITCH

INSPECTION

- Remove the front handle cover.
- Check for continuity between the black and green / yellow wire terminals inside the speedometer assembly.
  - When the brake lever is pulled - CONTINUITY

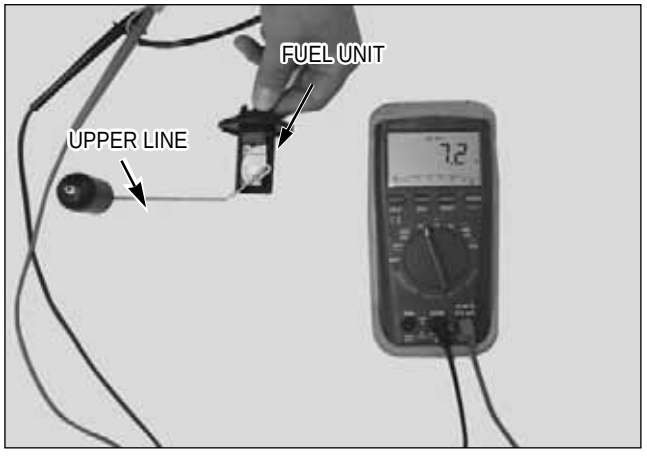
- When the brake lever is released - NO CONTINUITY

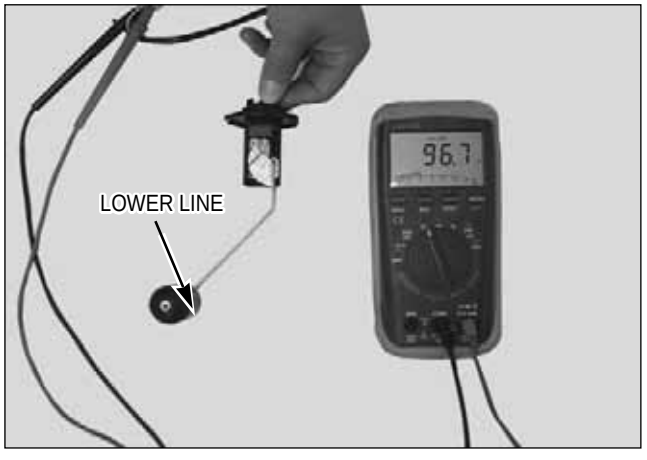
● Install in the reverse order of removal.



FUEL UNIT

● Remove the floor panel.
● Remove fuel unit coupler.
● Turn fuel unit retainer and remove.
● Remove fuel unit.
● Be careful not to damage the wire.
● Measure the resistance between the fuel unit upper and lower.





MEASURE THE RESISTANCE BETWEEN THE TERMINAL

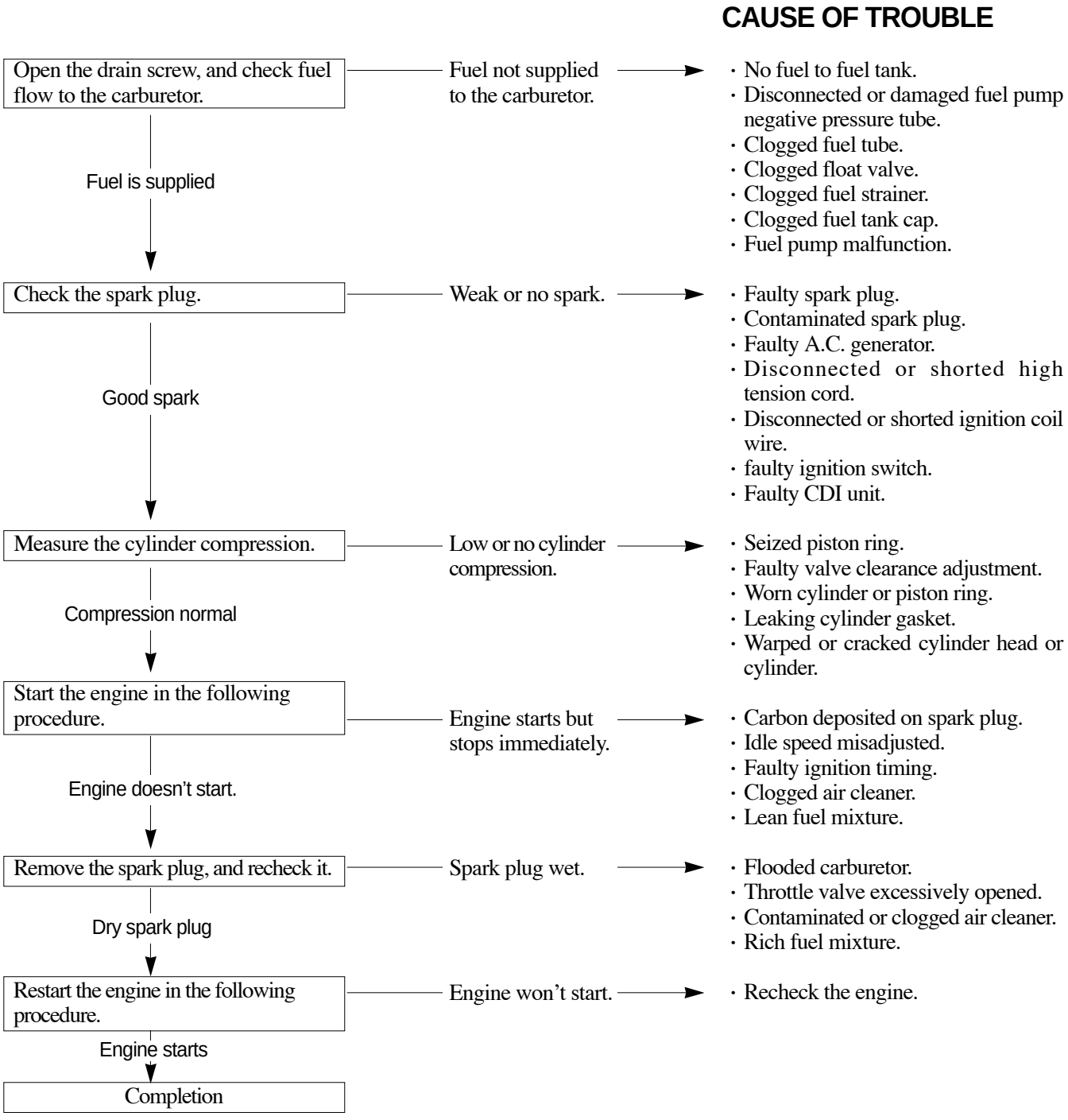
WIRE TERMINAL	FLOAT UPPER LINE
GREEN & Y/W	30 ~40 Ω
GREEN & B/W	500 ~ 600 Ω
B/W & B/W	550 ~ 650 Ω

* Resistance value = $\frac{\text{Resistance between Y/W \& Green}}{\text{Resistance between L/W \& Green}}$

18. TROUBLESHOOTING

ENGINE WON'T START OR HARD TO START · · · · · · · · · · · · 18-1
ENGINE STALLS, HARD TO START, ROUGH IDLING · · · · · · · · · · 18-2
POOR PERFORMANCE AT LOW SPEED AND IDLING · · · · · · · · · 18-3
POOR OPERATION · 18-4

ENGINE WON'T START OR HARD TO START


CAUSE OF TROUBLE
Open the drain screw, and check fuel flow to the carburetor.
Fuel not supplied to the carburetor.
· No fuel to fuel tank.
· Disconnected or damaged fuel pump negative pressure tube.
· Clogged fuel tube.
· Clogged float valve.
· Clogged fuel strainer.
· Clogged fuel tank cap.
· Fuel pump malfunction.
Fuel is supplied
Check the spark plug.
Weak or no spark.
· Faulty spark plug.
· Contaminated spark plug.
· Faulty A.C. generator.
· Disconnected or shorted high tension cord.
· Disconnected or shorted ignition coil wire.
· faulty ignition switch.
· Faulty CDI unit.
Good spark
Measure the cylinder compression.
Low or no cylinder compression.
· Seized piston ring.
· Faulty valve clearance adjustment.
· Worn cylinder or piston ring.
· Leaking cylinder gasket.
· Warped or cracked cylinder head or cylinder.
Compression normal
Start the engine in the following procedure.
Engine starts but stops immediately.
· Carbon deposited on spark plug.
· Idle speed misadjusted.
· Faulty ignition timing.
· Clogged air cleaner.
· Lean fuel mixture.
Engine doesn't start.
Remove the spark plug, and recheck it.
Spark plug wet.
· Flooded carburetor.
· Throttle valve excessively opened.
· Contaminated or clogged air cleaner.
· Rich fuel mixture.
Dry spark plug
Restart the engine in the following procedure.
Engine won't start.
· Recheck the engine.
Engine starts
Completion

ENGINE STALLS, HARD TO START, ROUGH IDLING

CAUSE OF TROUBLE

Open the drain screw, and check fuel flow to the carburetor.
- Fuel not supplied to the carburetor. →
  - · No fuel to fuel tank.
  - · Clogged fuel tube.
  - · Clogged float valve.
  - · Clogged fuel tank cap.
  - · Clogged fuel strainer.
  - · Disconnected or damaged fuel pump negative pressure tube.

Fuel is supplied ↓

Check the spark plug.
- Contaminated or discolored. →
  - · Contaminated spark plug.
  - · Using spark plug with an incorrect heat range.

Not contaminated or not discolored ↓

Insert the plug into cap, and check sparks.
- Weak or intermittent sparks. →
  - · Faulty or contaminated spark plug.
  - · Faulty A.C generator.
  - · Faulty ignition coil.
  - · Disconnected or short high tension cord.
  - · Faulty ignition switch.
  - · Faulty pluse generator.
  - · Faulty CDI unit.

Sparks normal ↓

Measure the cylinder compression. (Using a compression gauge.)
- Low or no cylinder compression. →
  - · Worn cylinder or piston ring.
  - · Leaking cylinder gasket.
  - · Faulty valve clearance adjustment.

Compression normal ↓

Check the ignition timing.
- Incorrect →
  - · Faulty A.C generator.
  - · Faulty CDI unit.

Correct ↓

Check the carburetor pilot screw
- Misadjustment →
  - · Lean fuel mixture.
  - · Rich fuel mixture.

Adjustment normal ↓

Check the intake air leak in the connection part of carburetor insulator.
- Leak →
  - · Faulty carburetor insulator tightening.
  - · Faulty carburetor insulator O-ring.
  - · Faulty insulator band tightening.
  - · Faulty insulator.

Not leak ↓

Check for continuity between auto bystarter terminals.
- No continuity →
  - · Lean fuel mixture.
  - · Rich fuel mixture.

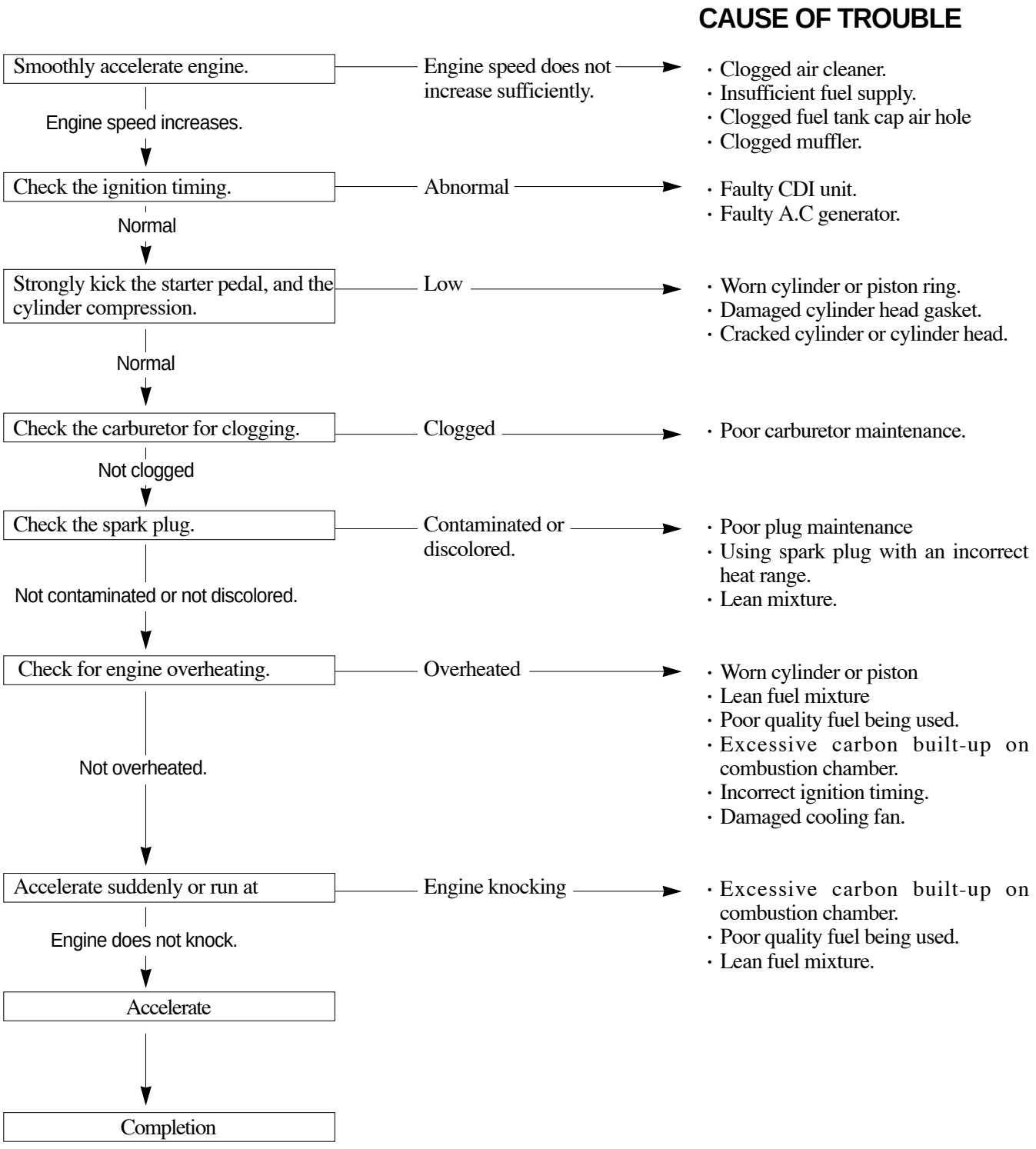
Continuity ↓

Remove the auto bystarter from the carburetor, check the starter valve.
- Starter valve won't operate. →
  - · Slow circuit clogged.

↓

Starter valve operates normally.

POOR PERFORMANCE AT LOW SPEED AND IDLING


CAUSE OF TROUBLE
Smoothly accelerate engine.
Engine speed does not increase sufficiently.
· Clogged air cleaner.
· Insufficient fuel supply.
· Clogged fuel tank cap air hole
· Clogged muffler.
Engine speed increases.
Check the ignition timing.
Abnormal
· Faulty CDI unit.
· Faulty A.C generator.
Normal
Strongly kick the starter pedal, and the cylinder compression.
Low
· Worn cylinder or piston ring.
· Damaged cylinder head gasket.
· Cracked cylinder or cylinder head.
Normal
Check the carburetor for clogging.
Clogged
· Poor carburetor maintenance.
Not clogged
Check the spark plug.
Contaminated or discolored.
· Poor plug maintenance
· Using spark plug with an incorrect heat range.
· Lean mixture.
Not contaminated or not discolored.
Check for engine overheating.
Overheated
· Worn cylinder or piston
· Lean fuel mixture
· Poor quality fuel being used.
· Excessive carbon built-up on combustion chamber.
· Incorrect ignition timing.
· Damaged cooling fan.
Not overheated.
Accelerate suddenly or run at
Engine knocking
· Excessive carbon built-up on combustion chamber.
· Poor quality fuel being used.
· Lean fuel mixture.
Engine does not knock.
Accelerate
Completion

POOR OPERATION

CLUTCH DRIVE / DRIVEN PULLEY

	CAUSE OF TROUBLE
Engine starts but vehicle won't move.	· Worn or damaged drive belt. · Damaged ramp plate. · Faulty weight roller. · Faulty movable drive face. · Damaged driven pulley weight shoe spring. · Faulty transmission. · Seized transmission.
Engine stalls or vehicle creeps.	· Broken driven pulley weight spring. · Seized clutch outer and weight.
Poor performance at start or lack of power.	· Worn or slipped drive belt. · Worn weight roller. · Seized driven face bearing. · Weak driven spring. · Faulty movable driven face.
Poor performance at high speed or lack of power.	· Worn or slipped drive belt. · Worn weight roller. · Worn driven pulley bearing.
Abnormal noise or odor.	· Oil or grease spilled on the drive belt and inside pulley. · Worn drive belt. · Damaged driven face weight spring. · Worn or seized driven pulley bearing.

HANDLE / WHEEL

Hard steering.	· Steering top thread too tight. · Insufficient tire pressure. · Damaged steering bearing. · Damaged ball race. · Faulty tire.
Steering wobbling.	· Insufficient tire pressure. · Worn or faulty tire. · Faulty wheel valance. · Bent rim. · Worn or damaged wheel bearing. · Loose axle shaft.
Steers to one side or does not track straight.	· Front and rear wheels not aligned. · Bent front cushion. · Bent rear cushion. · Faulty engine hanger. · Poor steering operation. · Faulty wheel alignment.
Wheel turns hard.	· Faulty wheel bearing. · Bent axle shaft. · Bent brake disk. · Faulty caliper piston.

POOR FRONT/REAR SUSPENSION PERFORMANCE

	CAUSE OF TROUBLE
Soft suspension.	· Weak cushion spring · Overloaded · Oil leakage from damper unit
Hard suspension.	· Bent fork pipe or cushion rod
Suspension noisy.	· Worn slider · Damaged cushion stopper rubber

MEMO

S4 FOUR

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DAELIM MOTOR

SERVICE MANUAL

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